Ultimate Wireforms, inc.

Orthodontic Product Catalog

Quality
Service
Innovation
Support

Ultimate Wireforms, inc.
Forming the Future
Trust

For over 25 years, it has been our pleasure to earn and keep the trust of our customers. With integrity and a consistent focus on Quality, Innovation, Service, and Support, Ultimate Wireforms meets the needs of the finest orthodontic companies in the world. We look forward to providing you with exceptional products and services for the next 25 years and beyond.

Quality You can trust our Quality. Ultimate Wireforms manufactures within an ISO 13485 certified Quality System. Starting with high quality materials, thorough design and development goes into every product we sell to ensure you consistently high quality parts. Our quality extends beyond our parts; we strive to provide the best service and support along with our products.

Service You can trust our Service. Knowledgeable, efficient Customer Service Reps are only the tip of the iceberg when it comes to our service, though that certainly helps! Ultimate’s service extends from product information before the sale, through design of propriety products, and on through assistance with customized packaging. In our view, the product is not just the device; we believe the product is the entire offering. How may we serve you?

Innovation You can trust our Innovation. Our engineers have access to a well-equipped in-house lab, as well as outside test laboratories, in their development of new products. Close collaboration between sales and engineering brings about creative, yet solid solutions, to orthodontic industry needs. Ultimate Wireforms strives to provide orthodontic devices and packaging solutions that will set you above and apart from the competition. That’s our goal. Look inside to see what’s new.

Support You can trust our Support. We build relationships with our customers, taking the time to know you and your needs, and work with you to help you to succeed. We are glad to provide technical data and marketing information to help you to make the sale. Our management team works together to develop products and support materials for your solid product offering. You can trust us to fully back our products before and after the sale.
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Ultimate Wireforms, Inc. is a subsidiary of The Ultimate Companies, Inc. and serves as the manufacturing and sales/marketing arm of quality orthodontic products. Our wholly-owned and operated manufacturing facility in Brasil, Ultimate Do Brasil, Ltda., provides efficient production of labor-intensive products for sale through Ultimate Wireforms. Research, development, and engineering support for The Ultimate Companies are provided by Ultimate NiTi Technologies, Inc. Working closely together, we are pleased to offer Quality, Innovation, Support, and Service.
Material Overview
Choosing the Best Materials for the Application

**Nickel Titanium Wire**

(NiTi -approximately 55% Ni and 45% Ti):

**Ideal for alignment and leveling in early to mid-stages of treatment.**

All NiTi wires exhibit a unique *Superelastic* behavior.

Superelastic behavior provides:
- Light to moderate, consistent forces.
- Responsiveness to chilling.
- Near consistent force over a long activation period.
- Greater patient comfort over stainless steel wires.
- Excellent resiliency, resulting in high resistance to permanent set.
- High flexibility.
- Leveling, torque, and rotation can be addressed simultaneously early in treatment. No need to treat each of these individually, as is the case if using stainless steel wires.

In addition, Nickel Titanium wire may also demonstrate a heat-activated *Shape Memory* effect produced through a tightly controlled manufacturing process.

**Ultra Therm®, Ultra Therm Plus, and Gradient-3® wires are shape memory, heat-activated wires.**

Shape memory properties exhibited by heat-activated, or thermal, Nickel Titanium wires:
- Superb flexibility at room temperature, allowing for even easier ligation. Soft in the hand.
- Very responsive to chilling.
- Gentle forces are initiated by intraoral heat and remain consistent throughout treatment.
- Noticeably more comfortable for the patient due to low forces.
- Allows for patient to control discomfort with cold water rinses.

**Black-Ti® Nickel Titanium Wire**

(NiTi -approximately 55% Ni and 45% Ti):

Your customers will love the efficiency of our Black-Ti superelastic premium wires! Ultimate Wireforms developed this ultra smooth, hard black surface nickel titanium wire engineered specifically for reduced friction and efficient tooth movement.

- **30% less friction** than traditional Nickel Titanium wire provides improved sliding mechanics.
- Our highest force Superelastic NiTi wire.
- Hard surface is an integral part of the wire, not a coating.
- Color nearly indistinguishable from other wires when in the mouth.
- Very resilient.
**βω-CNA** Wire

βω-CNA wire provides the solution to current mid-stage treatment limitations. Greater elasticity than stainless steel. Better formability than Nickel Titanium. This is the perfect replacement for stainless steel. As well, with stiffness between NiTi and stainless steel it is ideal for use right through finishing.

**Better Than Stainless Steel**
- 2X the elastic tooth-moving distance.
- More activation per wire.
- Better patient comfort.
- Ni-Free (79Ti, 11Mo, 6Zr, 4Sn).

**A Great Partner to Follow NiTi**
- Stiffness perfect for mid- and late stages of treatment.
- Significantly greater bend ductility.
- Easily accepts 1st and 2nd order bends.

**Stainless Steel Solid (Bright) Wire**

Our archwires are manufactured from medical grade 304V Stainless Steel material (70% Fe, 19% Cr, 9% Ni, 1.5% Mn, 0.5% Si). These archwires can be used throughout treatment but are best suited for mid- to late stages of treatment.

- Superior surface finish.
- Higher force and limited resiliency as compared with βω-CNA wire.
- Forces drop quickly; best suited as a finishing wire.
- Easy to bend.
- Greater patient discomfort when used in early treatment stages.

**Stainless Steel Solid Goldtone Wire**

A precise heat treatment of solid stainless steel wire produces slightly higher force levels.

- Approximately 5% greater tensile strength than Stainless Steel Solid Bright wires.
- Subtle, golden finish.
- Same characteristics listed above for Stainless Steel Solid wire.

**Stainless Steel Multi-strand (Bright) Wire**

Ultimate’s three types of multi-strand archwires made of medical grade Type 302SS (71% Fe, 18% Cr, 9% Ni, 1% Mn, 0.5% Si) are well suited for early stages of treatment as well as the finishing stage of detailing and retention. Lower forces and better resiliency than Stainless Steel Solid wire.

- 3-strand (twisted) wire provides moderate forces and limited flexibility.
- 3-strand flat retainer wire bonds to lingual for semi- and permanent retention.
- Coax (6-strand) wire provides lighter to moderate forces and slightly better resiliency than 3-strand.
- 8-Braid wire provides the lightest forces of the multi-strand stainless steel wires, with relatively good resiliency.

Forming the future with wires to meet your customers’ specific treatment plans!

www.ultimatewireforms.com
The Nickel Titanium ‘family’ of wires provide near-constant light to moderate forces over a long activation range.

- Comparably sized stainless steel wire exhibits the highest ligating and tooth-moving forces, with a very short activation range.
- \(\beta\text{-CNA}\) wires’ moderate stiffness, excellent formability, and extended activation range make them the ‘wire of choice’ for mid- to late stage treatment.

The following graph provides a quick reference of comparative forces for Ultimate Wireforms’ wire offerings. Testing was performed on wire sizes of comparable cross-sectional size so that the relation of forces can be seen. For specific material and wire size data, please see force charts in the Technical Data section of the catalog.

The useful range equates to the length of time the wire is active in tooth-moving. The elastic range is measured with test methods used in determining the stiffness values required for ISO 15841. The stiffer the material, the shorter its elastic range will be at any load level.

Stainless steel has a very short elastic range due to its high stiffness. By comparison, \(\beta\text{-CNA}\) wires exhibit more than twice the elastic range at similar tooth forces thus, allowing for twice the tooth movement as stainless steel at comparable force levels. This makes \(\beta\text{-CNA}\) wires a smart replacement for stainless steel in mid- and late treatment. Due to its comparably low force and very long elastic range, NiTi remains the popular choice for aligning and leveling.
Ultimate Wireforms offers archwires in a variety of materials to address early to late stages of treatment most efficiently. The quality controlled, dependable characteristics of our premium archwires allow your doctors to treat each case with confidence.

**Expect the best!**

Ultimate Wireforms offers the high quality wires you want for:

- Ease of Use
- Patient Comfort
- Efficient Tooth Movement!

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<table>
<thead>
<tr>
<th>Materials</th>
<th>Stage of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless Steel 8 Braid</td>
<td>Late</td>
</tr>
<tr>
<td>Stainless Steel Coax</td>
<td>Mid</td>
</tr>
<tr>
<td>Stainless Steel 3-Strand</td>
<td>Early</td>
</tr>
<tr>
<td>Stainless Steel Solid</td>
<td></td>
</tr>
</tbody>
</table>

Colored areas indicate suggested stages of treatment for each material.
Wires

Archwires
Lengths
Spools

Nickel Titanium
$\beta_{m-CNA}$
Stainless Steel
Orthodontic Wire Basics

Efficient forces, increased patient comfort, and ease of treatment.

We recognize that choosing the proper wire takes knowledge, training, and experience. Ultimate is here to help you find just what you are looking for with easy-to-read product offering pages and a Technical Data section full of technical information you might need to make the sale.

Characteristics of Wire to consider in making your selection

Product Highlights

Here’s where you find the good stuff!

- Brand Names
- Product Features
- Product Benefits

Material

The primary aspect of an orthodontic wire is the material. Ultimate offers a variety of materials so that the proper force can be utilized at each stage of treatment. A Material Overview, which provides details of attributes and suggested use, is located in the preceding section. Look for Material at the top of the product offering page! Pages are color coded, by material, to help in your selection.

Arch Form

Ultimate produces over 50 different forms! See our Arch Form Pull-out for the most popular arch form offerings.

Forces

Keeping the focus on efficient forces, patient comfort, and ease of treatment has led Ultimate to the development of several new forces within the basic material groups.

Wire Sizes

Looking for a light wire for aligning or a rectangle wire to fill a slot for more torque? Here’s where you will find what’s available. A metric conversion chart is available in the Technical Data section.

Custom Packaging

Extend your quality wire offering with custom packaging. Build your brand and your image with single pack wires, custom cartons, envelopes, and/or labels. See the Custom Packaging section for details.

![Nickel Titanium Wire](image)

Superelastic 1

Along with low friction Black T-P wire, Superelastic 1 (SE1) wire rounds out Ultimate’s austenitic Nickel Titanium wire line. The moderate, consistent forces exhibited by SE1 provide a great avenue for early to mid-stage treatment. It provides slightly less forces than our Black-T wire, and is fully austenitic at room temperature. Due to its high flexibility and resiliency, Ultimate’s Superelastic 1 wire recovers beautifully from bends and deformation of angles up to 45° and even up to 75° in some cases!

- Minimum, consistent force over a long activation period
- Greater patient comfort than with Stainless Steel wires
- Excellent resiliency
- Highly flexible
- Resistant to chilling
- Aₙ of 40-60°F (2.2-16°C)
- Square and Rectangle wires offer ability to simultaneously bend and add torque and rotation earlier in treatment. More efficient than treatment with Stainless Steel.

High flexibility and resiliency!

Arch Forms: NAT2, GLOBL, STD, OPTMA®, and INT.

Superelastic Nickel Titanium wire is also available in 7’ in lengths and 15 lb. spools.

<table>
<thead>
<tr>
<th>Forces</th>
<th>0.012</th>
<th>0.014</th>
<th>0.016</th>
<th>0.018</th>
<th>0.020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round</td>
<td>0.012</td>
<td>0.014</td>
<td>0.016</td>
<td>0.018</td>
<td>0.020</td>
</tr>
<tr>
<td>Square</td>
<td>0.016 x 0.014</td>
<td>0.018 x 0.014</td>
<td>0.020 x 0.016</td>
<td>0.025 x 0.017</td>
<td>0.025 x 0.018</td>
</tr>
<tr>
<td>Rectangle</td>
<td>0.014 x 0.020</td>
<td>0.016 x 0.020</td>
<td>0.016 x 0.025</td>
<td>0.017 x 0.025</td>
<td>0.018 x 0.025</td>
</tr>
</tbody>
</table>

Pre-Stopped Archwires

Most Nickel Titanium archwires are available pre-loaded with two lightly crimped tube stops. These provide the clinician with easy placement of stops along the archwire to control wire movement.

Centermark

The patented Dimple® Centermark is an efficient, economical way to prevent Nickel Titanium archwire slipping. The vertical protrusion helps prevent the archwire from sliding through the bracket or out of the buccal tube. This feature also eliminates cinching behind the buccal tubes.

A permanent Etch centermark is available on most archwires. Triple and single etch marks designate upper or lower jaw.

![Custom Packaging available. See Custom Packaging section.](image)

⚠️ WARNING: Nickel Titanium and Stainless Steel products contain nickel. Wire dimensions are in inches unless otherwise noted. Metric conversions may be found in the Reference section.
Ultimate has the materials and the arch forms you want

With over 1.5 million parts in inventory on a daily basis, Ultimate can turn your order around quickly. The arch forms on the following pages are our most popular and are in stock awaiting your order. We do, however, make over 50 different forms, so, should you want an arch form not on the chart, please contact our helpful Customer Service Representatives for assistance. Through the use of a customized software system that links product needs from the raw material all the way through manufacturing, inventory, packaging, and shipping, we have what you need and can get it to you fast!

Ultimate’s in-house engineering department allows us to be responsive to your needs. Have an idea for a new archwire? Speak with one of our engineers in R&D to discuss a custom arch form for you! Our depth of design, development, and manufacturing experience in orthodontic materials makes your job easier!

Give us a call!

Arch Form Chart

Nickel Titanium

β-titanium

Stainless Steel

Forming the future with wires to meet your customers’ specific treatment plans!
Pre-stopped Archwires: Most Nickel Titanium archwires are available pre-loaded with two lightly crimped tube stops. These provide the clinician with easy placement of stops along the archwire to control wire movement.

Centermarks
- The Dimple® Centermark is available on our Nickel Titanium archwires. This vertical protrusion, which is placed at the centerline of the wire, helps prevent the archwire from sliding through the bracket or out of the buccal tube. This feature also eliminates cinching behind the buccal tubes. The Dimple is still an efficient, economical way to prevent archwire slipping.
- Permanent Etch: Etch markings denote centerline of Stainless Steel and \textit{flats-CNA} archwires. It is also available on Nickel Titanium archwires. Three (3) lines denote upper arch, single line denotes lower arch.

Materials
Archwires are available in materials indicated within each form. Product pages are similarly color-coded, by material, for ease of reference.

Arch Forms
- Line drawings indicate nominal arch forms.
  - Where Upper (Maxillary) and Lower (Mandibular) arch forms differ, Lower arch is drawn within Upper arch form.
  - Dotted lines indicate extended leg length of Stainless Steel and \textit{flats-CNA} arch forms where length is longer than NiTi arch form leg length.

Lengths and Spooled Wire
- Nickel Titanium wire is available in 7 inch lengths.
- Stainless Steel and \textit{flats-CNA} wire are available in 14 inch lengths.
- Stainless Steel 3-Strand and Coax wire are available for purchase in 30 foot spools.
Nickel Titanium Wire

The Ultimate wire for early and mid-stage treatment. Superelastic and Shape Memory characteristics provide greater patient comfort, easier ligation, and longer activation time.

Moderate forces and a longer activation range allow Nickel Titanium rectangle wire to be used earlier in treatment and to move teeth over a longer period of time.

Through tight control on raw material and our production processes, we are able to offer a variety of consistent tooth-moving forces ranging from moderate (Superelastic) to light (Heat-activated/Thermal). Heat-activated wires are soft and pliable at room temperature, allowing the doctor to easily ligate each patient while still obtaining the proper forces during treatment.

Nickel Titanium Forces (from Moderate to Light)

- Black-Ti Superelastic (SE)
- Superelastic 1 (SE1)
- Ultra Therm Plus: Heat-activated
- Ultra Therm: Heat-activated
- Gradient-3: Heat-activated multi-force archwire with three forces designed into the wire; the lightest force at the anterior region, slightly higher force in the cuspid region, and highest force in the posterior region.

With Nickel Titanium’s added resiliency, there may be a tendency to over-stress the wire during ligation. To assist your customers in knowing just how far they can bend our NiTi wires, we have created a guide for their reference. The Nickel Titanium Maximum Bend Angle Guide can be found in the Technical Data section of the catalog.

⚠️ WARNING: Nickel Titanium products contain nickel.

Wire Dimensions are in inches unless otherwise noted.
Metric conversions may be found in the Reference section.
Form your future with these options for your Nickel Titanium wires!

Custom Packaging

Set yourself apart from the competition with custom packaging!

Choose from a variety of custom packaging options to meet your needs and budget. Pick the one that serves you best in promoting your brand.

From Single pack archwires, in custom, 4-color process cartons...

To black print on colored envelopes...

To 4-color process print labels...

Build your NiTi business with our help!
See the Custom Packaging section for the possibilities or call Customer Service for full details.

Pre-Stopped Archwires

Two crimpable tube stops are pre-loaded and lightly crimped on archwires to provide the clinician with easy positioning along the arch. With only a light crimp, the tube stops are secured in place.

- Tube stops help to control wire movement along the arch.
- Convenient alternative to cinching.
- Two bright, fully annealed 304SS 2mm long stops pre-crimped per archwire.
- Small tubes (ID of .019") are pre-installed on round* wires.
- Large tubes (ID of .031") are pre-installed on square* and rectangle* wires.

Pre-installed tube stops!

<table>
<thead>
<tr>
<th>Material</th>
<th>Available in all NiTi arches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire Sizes*</td>
<td></td>
</tr>
<tr>
<td>Round:</td>
<td>.012 through .018</td>
</tr>
<tr>
<td>Square:</td>
<td>to a maximum of .020 x .020</td>
</tr>
<tr>
<td>Rectangle:</td>
<td>.014 x .025 through .019 x .025</td>
</tr>
</tbody>
</table>

Pre-Stopped Archwire offering is indicated by:

Custom Packaging available. See Custom Packaging section.
Black-Ti®

Lower friction equates to faster results! No question about it, Ultimate’s Black-Ti Nickel Titanium wire produces 30% less friction between bracket and wire than traditional Nickel Titanium wire! The ultra smooth, hard black surface allows your customers to get to the finishing stage sooner by providing better sliding mechanics in early and mid-stage treatment. The shiny surface is nearly indistinguishable from regular NiTi in the mouth.

Black-Ti Nickel Titanium wire is the choice for your doctors’ superelastic needs. Not only does the surface allow teeth to move faster but Black-Ti is our highest force Nickel Titanium offering.

• Reduces sliding friction by 30%.
• Our highest force NiTi wire offering.
• Excellent resiliency.
• The ultra smooth, hard surface is an integral part of the NiTi wire. No coating to chip or flake.
• Similar in appearance to regular NiTi wires when in the mouth.
• More economical than other friction-reducing archwires on the market.

30% Less Friction!

<table>
<thead>
<tr>
<th>Arch Forms</th>
<th>NAT2, GLOBL, INT, OPTMA™, AFORM.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forces</td>
<td>SE (Superelastic)</td>
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<table>
<thead>
<tr>
<th>Wire Sizes</th>
<th>Round:</th>
<th>.012</th>
<th>.014</th>
<th>.016</th>
<th>.018</th>
<th>.020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rectangle:</td>
<td>.014 x .025</td>
<td>.016 x .022</td>
<td>.016 x .025</td>
<td>.017 x .025</td>
<td>.018 x .025</td>
</tr>
<tr>
<td>Centermark</td>
<td>All Black-Ti Archwires are centermarked with the Dimple® Centermark.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tbody>
</table>

Custom Packaging available. See Custom Packaging section.

Forces graphs of Black-Ti® wires may be found in the Technical Data section.

Superelastic 1

Along with low-friction Black-Ti® wire, Superelastic 1 (SE1) wire rounds out Ultimate’s austenitic Nickel Titanium wire line. The moderate, consistent forces exhibited by SE1 wire provide a great avenue for early to mid-stage treatment. It provides slightly less force than our Black-Ti wire, and is fully austenitic at room temperature. Due to its high flexibility and resiliency, Ultimate’s Superelastic 1 wire recovers beautifully from bends and deformation of angles up to 45°, and even up to 75° in some cases!

• Moderate, consistent force over a long activation period.
• Greater patient comfort than with stainless steel wires.
• Excellent resiliency.
• Highly flexible.
• Responsive to chilling.
• Af of 45-60° F (7.2-15.6°C).
• Square and Rectangle wires offer ability to simultaneously level and add torque and rotation earlier in treatment. More efficient than treatment with stainless steel.

High flexibility and resiliency!

<table>
<thead>
<tr>
<th>Arch Forms</th>
<th>NAT2, GLOBL, STD, OPTMA™, and INT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forces</td>
<td>Superelastic 1.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wire Sizes</th>
<th>Round:</th>
<th>.012</th>
<th>.014</th>
<th>.016</th>
<th>.018</th>
<th>.020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.013 available in NATZ, GLOBL, and OPTMA.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Square:</td>
<td>.016 x .016</td>
<td>.018 x .018</td>
<td>.020 x .020</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rectangle:</td>
<td>.014 x .025</td>
<td>.016 x .022</td>
<td>.016 x .025</td>
<td>.017 x .025</td>
<td>.018 x .025</td>
</tr>
<tr>
<td>Pre-Stopped</td>
<td>Available with crimpable tube stops.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Centermark The Dimple® or Etch Centermark.

Custom Packaging available. See Custom Packaging section.

Force graphs of Superelastic 1 wires may be found in the Technical Data section.
Ultra Therm® Plus

Ultra Therm Plus is our specially developed heat-activated Nickel Titanium wire with consistent $A_f$ performance and moderate forces. The ligating and tooth-moving forces of Ultra Therm Plus fall between our moderate force Superelastic 1 and light force Ultra Therm wires. This is an easy wire to work with plus the optimal forces deliver great results!

- Forces fall directly between Superelastic 1 and Ultra Therm wires, providing optimal midrange load characteristics.
- Very consistent $A_f$ of 65-75°F (18.3-23.9°C). Every production lot of Ultra Therm Plus is water bath tested to verify the $A_f$.
- Ultra Therm Plus wire is slightly thermal at room temperature for easy ligation.
- Responsive to chilling.
- Excellent resiliency.

Moderate force, heat-activated wire!

<table>
<thead>
<tr>
<th>Arch Forms</th>
<th>NATZ, GLOBL, INT, and OPTMA™.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forc es</td>
<td>Ultra Therm Plus.</td>
</tr>
<tr>
<td>Wire Sizes</td>
<td>Round: .012 .014 .016 .018 .020</td>
</tr>
<tr>
<td></td>
<td>(.012 and .020 OPTMA not available.)</td>
</tr>
<tr>
<td></td>
<td>Square: .016 x .016 .018 x .018 .020 x .020</td>
</tr>
<tr>
<td></td>
<td>Rectangle: .014 x .025 .016 x .022 .016 x .025 .017 x .025 .018 x .025</td>
</tr>
<tr>
<td></td>
<td>.019 x .025 .021 x .025</td>
</tr>
<tr>
<td>Pre-Stopped</td>
<td>Available with crimpable tube stops.</td>
</tr>
</tbody>
</table>

Centermark The Dimple® or Etch Centermark.

Custom Packaging available. See Custom Packaging section.

Force graphs of Ultra Therm Plus wires may be found in the Technical Data section.

Ultra Therm®

Ultra Therm is a heat-activated (thermal) wire specifically designed for consistent $A_f$ performance and low tooth-moving forces. Ultra Therm wire provides outstanding resiliency and exhibits true thermal performance. Soft at room temperature and in the doctor’s hand, Ultra Therm allows for easy ligation. Outstanding shape integrity.

- Specially designed wire for consistent $A_f$ performance.
- Every production lot of Ultra Therm wires is water bath tested to verify $A_f$ of 80-90°F (26.7-32.2°C).
- Soft at room temperature; very easy to ligate.
- Great resiliency.
- Slightly lower forces than Ultra Therm Plus.
- Ideal for significant crowding cases.
- Gentle forces provide for greater patient comfort.
- Very responsive to chilling.
- Square and Rectangle wire sizes provide low, consistent tooth-moving forces to address torque control early in treatment.

Lowest forces, heat-activated.

<table>
<thead>
<tr>
<th>Arch Forms</th>
<th>NATZ, GLOBL, INT, OPTMA™.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forc es</td>
<td>Ultra Therm.</td>
</tr>
<tr>
<td>Wire Sizes</td>
<td>Round: .012 .014 .016 .018 .020</td>
</tr>
<tr>
<td></td>
<td>(.012 and .020 OPTMA not available.)</td>
</tr>
<tr>
<td></td>
<td>Square: .016 x .016 .018 x .018 .020 x .020</td>
</tr>
<tr>
<td></td>
<td>Rectangle: .014 x .025 .016 x .022 .016 x .025 .017 x .025 .018 x .025</td>
</tr>
<tr>
<td></td>
<td>.019 x .025 .021 x .025</td>
</tr>
<tr>
<td>Pre-Stopped</td>
<td>Available with crimpable tube stops.</td>
</tr>
</tbody>
</table>

Centermark The Dimple® or Etch Centermark.

Custom Packaging available. See Custom Packaging section.

Force graphs of Ultra Therm wires may be found in the Technical Data section.
Ultimate’s R&D Department has developed the ‘ultimate’ wire for optimal performance and patient comfort. Gradient-3® archwires are produced under strict manufacturing controls to provide three distinct heat-activated (thermal) forces through the arch, while maintaining superior shape integrity!

- Three heat-activated, biological forces designed for effective tooth movement within specified regions.
- Thermal throughout the arch.
  Median $A_f$ temperatures range from 85°F/ 29.4°C for the anterior region to 66°F/18.9°C for the posterior region. The median $A_f$ temperature for the bicuspid region falls between these values, approximately 76°F/24.4°C.
- Superior shape integrity.

Three heat-activated forces in one wire!

<table>
<thead>
<tr>
<th>Arch Form</th>
<th>NAT2, GLOBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forces</td>
<td>Three heat-activated forces, specially designed to apply appropriate force for anterior, bicuspid, and molar regions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wire Sizes</th>
<th>Round: .016</th>
<th>.018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square:</td>
<td>.016 x .016</td>
<td>.018 x .018</td>
</tr>
<tr>
<td>Rectangle:</td>
<td>.016 x .022</td>
<td>.017 x .025</td>
</tr>
</tbody>
</table>

Pre-Stopped Available with crimpable tube stops.

Centermark The Dimple® or Etch Centermark.

Custom Packaging available. See Custom Packaging section.

Force graphs of Gradient-3® wires may be found in the Technical Data section.

The anterior region has the lowest heat-activated force, as the anterior teeth have the lightest roots.

The bicuspid region has a slightly greater heat-activated force to move the larger rooted bicuspids.

The posterior region has the greatest heat-activated force of the archwire for moving the strong-rooted molars.
Reverse Curve of Spee

Ultimate offers five Reverse Curve of Spee (RCS) archwire shapes to meet your correction of curve of spee needs. All are carefully finished to ensure that the wire slides easily through the bracket slot and applies continuous force for ideal movement. RCS can be used for bite correction or, with springs and elastomerics, for retraction. Available in both Superelastic 2 and heat-activated Ultra Therm® forces.

Superelastic 2 RCS wires provide light to moderate, constant forces. These wires are flexible and exhibit excellent resiliency.

Ultra Therm RCS are shape-memory, heat-activated wires which are soft at room temperature for easy ligation and become fully active in the mouth. The gentle forces remain consistent throughout placement and are noticeably more comfortable for the patient. The superb flexibility reduces the chance of debonding brackets.

- Bite opening or closing.
- Initial leveling and aligning.
- Arch consolidation and expansion.
- Deep and open bite correction.
- Retraction of flared, protruding incisors.

<table>
<thead>
<tr>
<th>Arch Forms</th>
<th>RCS1, 3, 4, 5, and 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forces</td>
<td>Superelastic 2 (SE2)</td>
</tr>
<tr>
<td></td>
<td>Ultra Therm (Not available in RCS4)</td>
</tr>
<tr>
<td>Wire Sizes</td>
<td>Round: .012 (SE2 only), .014, .016, .018, .020</td>
</tr>
<tr>
<td></td>
<td>Square: .016 x .016, .018 x .018, .020 x .020</td>
</tr>
<tr>
<td></td>
<td>Rectangle: .016 x .022, .016 x .025, .017 x .025, .018 x .025, .019 x .025</td>
</tr>
<tr>
<td>Centermark</td>
<td>The Dimple® or Etch Centermark.</td>
</tr>
</tbody>
</table>

RCS1 is our most popular Reverse Curve of Spee archwire. The moderate radius exerts ideal force for correction of severe curve of spee cases. This shape offers a deeper ‘rocking chair’ radius than our RCS3 archwire.

RCS3 provides a ‘shallower’ radius than our RCS1 archwire and, thus, provides a lighter force. It is easier to ligate and provides gentler, more comfortable tooth movement.

RCS4 has a much tighter arch form and ‘toed-in’ molar section, providing the capability of molar rotation and re-alignment. This is our most aggressive tooth-moving RCS due to the tight radius.

RCS5, our specialty arch, with its sweeping, straight legs provides multiple solutions. RCS5 is the answer for tilting back molars for anchorage purposes. It easily puts curve of spee on the upper arch and can be used to torque the molars buccally. Intrusion or extrusion of anterior teeth can also be accomplished. When flipped, it can be used to expand the lower arch. This is truly a multi-function arch!

RCS6 is a blend of RCS1 and RCS4; an arch with slightly shallower ‘rocking chair’ radius than the RCS1, but not as narrow as the RCS4. The RCS6 arch is perfect for bite opening and closing, leveling and aligning, and deep and open bite correction. This shape is popular in Europe and Asia.
Torqued Arches

Nickel Titanium Torqued Arches are full-sized NiTi archwires with the anterior section pre-torqued to 20°. These specialized, preformed wires allow for the addition of torque into the anterior region while maintaining non-torque in the posterior regions.

- Provides 20° anterior torque.
- Three anterior torque segment widths available.
- Early introduction of torque in upper centrals and laterals.
- Provides uprighting torque in the lower anterior segment.
- Labial or lingual torque forces available by reversing wire orientation.
- Ideal for passive, self-ligating bracket systems.
- Nickel Titanium provides lower forces compared to Stainless Steel alternatives, as well as shape memory benefits of better resiliency and longer activation range.

No time-consuming chairside bending! Precision anterior torque formed into the arch.

<table>
<thead>
<tr>
<th>Arch Form</th>
<th>NAT2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Force</td>
<td>Superelastic 1</td>
</tr>
</tbody>
</table>

Anterior Segments & Associated Centermark:
- 28mm (Lower), Single-Line Etch Centermark
- 34mm (Upper), 2-Line Etch Centermark
- 38mm (Upper), 3-Line Etch Centermark

Wire Sizes:
- .016 x .022, .017 x .025, .018 x .025, .019 x .025, .021 x .025
- .016 x .025 available in 34 and 38 only

Etch line on arch leg provides reference of torque during placement.

Custom Packaging available. See Custom Packaging section.

Connecticut Intrusion Arches (CTA®) - Nickel Titanium

Ultimate’s CTA (Connecticut Intrusion Arches) is a great tool for providing absolute intrusion of anterior teeth, molar tipback, incisor flaring, leveling of anterior occlusal cants, and more! CTA are available in either Nickel Titanium or nickel-free fluor-CNA, in both maxillary and mandibular forms.

Force can be adjusted by increasing or decreasing the bend at the posterior leg of the arch.

- Provides moderate, continuous forces over large activation range.
- Superelastic qualities.
- For adult or mixed dentition.
- Can be followed by fluor-CNA CTA treatment, particularly in adults.

Provides absolute intrusion!

<table>
<thead>
<tr>
<th>Material</th>
<th>Nickel Titanium</th>
</tr>
</thead>
<tbody>
<tr>
<td>See also</td>
<td>fluor-CNA CTA®</td>
</tr>
</tbody>
</table>

Arch Form
- CTA form is specially designed for maximum efficiency.
- Anterior Segment Lengths:
  - 34mm: Maxillary
  - 28mm: Mandibular
- Premolar Segment Lengths:
  - Short: 15mm
  - Long: 22mm

Wire Sizes:
- .016 x .022, .017 x .025

Custom Packaging available. See Custom Packaging section.

Anterior Segment
- Maxillary: 34mm
- Mandibular: 28mm

Premolar Segment
- Short: 15mm
- Long: 22mm

Not to scale
Utility Arches

Multi-purpose archwire provides focused treatment of anterior or posterior segments. Our NiTi Utility Arch is made of five high quality parts: a precision NiTi anterior segment with preformed step, adjusting tubes made of 316L stainless steel, and .016” x .016” preformed legs of 304V stainless steel. Our NiTi anterior version provides comfortable, moderate tooth-moving forces. (Also available in a Type 304SS anterior segment version.)

- Perfect for leveling of the arch.
- Uprighting of the molars can be achieved with ease.
- Can provide lower incisor intrusion.
- Variety of precision anterior segment lengths.
- Adjustable tube/leg for customized canine/premolar distance.

Multi-purpose archwire!

<table>
<thead>
<tr>
<th>Material</th>
<th>Nickel Titanium anterior segment with stainless steel tubes and legs. (See also Stainless Steel Utility Arches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch Form</td>
<td>Utility Arch Shape is specially designed for maximum efficiency. The anterior segment is similar to the anterior of our NAT2 arch form.</td>
</tr>
</tbody>
</table>
| Anterior Segment Lengths | Lower: 24mm 28mm  
Upper: 34mm 38mm 42mm |
| Wire Sizes | Round .016 .018  
Square .016 x .016 |
| Centermark | Etch Centermark. |
Twice the elastic movement of stainless steel! Formability that rivals stainless steel!

Get twice the tooth-moving distance than stainless steel wire at the same level of force, with a βIII-CNA® archwire.

Its greater elasticity (vs. stainless steel), greater ductility (vs. NiTi), and moderate tooth-moving forces (vs. stainless steel) make it a great wire to follow NiTi treatment. Longer activation time and better patient comfort in a Nickel-free wire. Time to replace your stainless steel wires for a proven performer for mid-through finishing stages!

Easy placement of bends and loops at chairside saves time! βIII-CNA wire bendability makes it the perfect wire for custom tipping, aligning, space closure, rotation, and tooth movement. The resiliency and moderate tooth-moving force of βIII-CNA makes it a great wire for mid- to late stages of treatment.

Working directly with our vendors to draw and roll our own βIII-CNA wire to our tight quality specifications ensures that every archwire you purchase has consistently great formability and accurate activation range.

Along with preformed arches and specialized archwires, we offer a wide variety of βIII-CNA 14 inch lengths. Large, round wire lengths are ideal as retainer wire in the fabrication of retention appliances and transpalatal/ palatal arches. The formability and resiliency of the rectangle and small, round lengths allow for custom fabrication of molar distalizing appliances, spring arches, sectional arches, and other devices where intricate loops and bends are needed.
Solid

$\beta$-CNA® wire is becoming the wire of choice for mid-through finishing stages of treatment. This nickel-free wire offers twice the elastic movement of stainless steel, while maintaining like formability. With lower bend force levels than stainless steel, it provides more comfort for the patient as well as ease of use by the clinician. Its formability is ideal for chairside placement of loops and bends for space closure, tipping, or focused tooth movement. Lengths are perfect for fabrication of auxiliary arches, retainer and palatal appliances, as well as devices requiring intricate bends or loops.

- A far more efficient wire than stainless steel, with twice the tooth-moving distance at the same force level!
- More patient friendly: Bend Force values between NiTi and SS.
- Excellent cold-forming properties – comparable with SS.
- Ni-free! Eliminates nickel-sensitivity concerns during later stage use of larger wires and longer time periods.

Nickel-free and excellent formability.

<table>
<thead>
<tr>
<th>Arch Forms</th>
<th>NAT2L, GLOBL, INT, and OPTMA™. $\beta$-CNA® wire is also available in 14 inch lengths for custom fabrication applications.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archwire Sizes</td>
<td>Round: .016 .018</td>
</tr>
<tr>
<td></td>
<td>Square: .016 x .016 .018 x .018</td>
</tr>
<tr>
<td></td>
<td>Rectangle: .016 x .022 .017 x .025 .018 x .025 .019 x .025 .021 x .025</td>
</tr>
<tr>
<td>OPTMA available only in</td>
<td>.016 x .022 .016 x .025 .017 x .025 .018 x .025 .019 x .025</td>
</tr>
<tr>
<td>Length</td>
<td>Wire Sizes All of the above wire sizes, as well as .027, .032, .036</td>
</tr>
<tr>
<td></td>
<td>Centermark Permanent Etch Centermark.</td>
</tr>
<tr>
<td></td>
<td>Custom Packaging available. See Custom Packaging section.</td>
</tr>
</tbody>
</table>

Force graphs of $\beta$-CNA® wires may be found in the Technical Data section.

Connecticut Intrusion Arches (CTA®) - $\beta$III-CNA®

Provides absolute intrusion!

Material $\beta$-CNA® See also NiTi CTA®

Arch Form CTA form is specially designed for maximum efficiency.

| Anterior Segment Lengths: |
|---|---|
| 34mm: Maxillary |
| 28mm: Mandibular |

| Premolar Segment Lengths: |
|---|---|
| Long: 22mm |

Wire Sizes .016 x .022 .017 x .025

Custom Packaging available. See Custom Packaging section.

Ultimate’s CTA (Connecticut Intrusion Arches) is a great tool for providing absolute intrusion of anterior teeth, molar tipback, incisor flaring, leveling of anterior occlusal cants, and more! CTA are available in either Nickel Titanium or nickel-free $\beta$-CNA®, in both maxillary and mandibular forms.

Force can be adjusted by increasing or decreasing the bend at the posterior leg of the arch.

$\beta$-CNA CTA

- Nickel-free $\beta$-CNA® wire.
- Recommended for use in adult patients.
- Ideal for following NiTi CTA treatment.
- Ideal for extraction patients treated with sliding mechanics; the wire can be used for intraoral anchorage.

www.ultimatewireforms.com
**βIII-CNA® Looped Arches**

*βIII-CNA® Looped Arches*, with preformed Mushroom and T-Loops, are constructed of our nickel-free Beta Titanium alloy to provide consistent, gentle forces throughout treatment.

*βIII-CNA® Looped Arches* provide significant benefits over stainless steel looped archwires.

**Product Features**
- Nickel-free Beta Titanium.
  - Bendable.
  - Smooth, polished surface.
  - Less force.
  - Larger activation range.
  - Gradual force decay.

**Treatment Benefits**
- Space closure.
- Provides anterior intrusion/retraction.
- Allows torque or root movement of incisors.
- Control of root position of posterior teeth.
- Pre-formed loops and consistent force reduce chair time.
- Archwire segments can be activated independently.

### Nickel-free and Preformed! Large activation range.

<table>
<thead>
<tr>
<th>Arch Form</th>
<th>NAT2 Upper and Lower (proportional with the anterior loop spacing), with 2 Anterior Loops</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24-30mm Lower arch form</td>
</tr>
<tr>
<td></td>
<td>32-56mm Upper arch form</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wire Sizes</th>
<th>Anterior Loop Spacing (measured from center of loops)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.016 x .022</td>
<td>Mushroom looped and T-looped: 24mm – 42mm, in 2mm increments, &amp; 46mm</td>
</tr>
<tr>
<td>.017 x .025</td>
<td>Mushroom looped only: 52mm and 56mm</td>
</tr>
</tbody>
</table>

**Mushroom Looped 2-Loop Archwires**

Unique design provides these benefits over traditional T-looped archwires:
- Better activation.
- More consistent force.
- More comfort for patient.
- Tissue friendly.
- Proportionally-shaped loops for upper and lower archwires.

**T-Looped 2-Loop Archwires**

- Our original looped archwire.
- Consistent force.

**Custom Packaging**

Set yourself apart from the competition with custom packaging!

Choose from a variety of custom packaging options to meet your needs and budget. Pick the one that serves you best in promoting your brand.

*From Single pack archwires, in custom, 4-color process cartons...*

*To black print on colored envelopes...*

*To 4-color process print labels...*

*Build your βIII-CNA® business with our help!*  
*See the Custom Packaging section for the possibilities or call Customer Service for full details.*

---

We can meet you where you are and help you to grow.
Stainless Steel Wire

Ultimate’s Stainless Steel wire products, manufactured of medical grade stainless materials, have smooth surfaces, accurate forms, and consistent forces to provide reduced friction and precise torque control.

Stainless Steel wire offerings have evolved from the original solid to include various strand options which provide more flexibility and lighter forces.

### Solid Wire
Round, Square, and Rectangular archwires are formed from high quality, high-luster Type 304VSS wire. Tight controls ensure consistent shape and flatness. High tensile strength and high modulus of elasticity. Straight lab lengths produced from high quality Type 302SS.

### 3-Strand Flat Lingual Retainer Wire
Thin, flat, fully-annealed wire formed from 3-strand Type 302SS wire. Bonds easily to retain tooth position.

### 3-Strand
Three twisted strands of fine, round Type 302SS that form a single wire to provide light forces, good flexibility, and resiliency.

### Coax (6 Strand)
Five strands of very fine Type 302SS wrapped around a single core wire. Light ligating and tooth-moving forces.

### 8-Braid
Eight equal-sized Type 302SS braided into a tight matrix and rolled to the popular rectangular sizes to provide gentle tooth-moving forces for finishing stages. In general, these offer the lightest force of the Stainless Steel wires. Resists fraying when cut.

Proper wire characteristics are key in achieving treatment goals. Ultimate takes pride in offering high quality, high-luster archwires with consistent forces. Refer to the Technical Data section for Force Graphs and Bending Forces of Ultimate’s Stainless Steel wires.
Set yourself apart from the competition with custom packaging!

Package all of your wire products in custom packaging to project your business image as rooted and strong. Choose from a variety of custom packaging options to meet your needs and budget. Pick the one that serves you best in promoting your brand.

From Single pack archwires, in custom, 4-color process cartons...
To black print on colored envelopes...
To 4-color process print labels...

Don’t stop with just custom archwire packaging! Your whole product line can benefit from an image boost. Stainless steel lengths and spools can be custom labeled with your logo and colors, too. See the Custom Packaging section for the possibilities or call Customer Service for full details.

Solid

Ultimate’s Solid Stainless Steel archwires are produced of high quality medical grade Type 304VSS material with highly polished surfaces to provide reduced friction between bracket and arch. Their high forces are well-suited for stabilizing positioned teeth during mid- to late stages of treatment. Rectangular wires offer precise torque control for these same stages.

Solid Stainless Steel Lengths (14”) produced of high quality Type 302SS material have a smooth finish and are available in a wide range of wire sizes for custom appliance fabrication.

- Superior smooth, bright finish.
- Precise shape and flatness of arches is ensured through tight production control.
- Best suited as finishing wire, as forces drop quickly as teeth move.
- Easy bend placement.
- Good corrosion resistance.

Force graphs of Stainless Steel wires may be found in the Technical Data section.

Ultra-smooth surface and high forces

<table>
<thead>
<tr>
<th>Arch Forms</th>
<th>NAT2, GLOBL, STD, INT, AFORM, and OPTMA. Solid Stainless Steel wire is also available in 14 inch lengths for custom-forming appliances.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forces</td>
<td>See Technical Data section for force graphs and bending forces of our Bright Stainless Steel wires. Slightly higher tensile strength and load is available with our Gold-tone wires.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Archwire Wire Sizes</th>
<th>Round:</th>
<th>.012</th>
<th>.014</th>
<th>.016</th>
<th>.018</th>
<th>.020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square:</td>
<td>.016 x .016</td>
<td>.017 x .017</td>
<td>.018 x .018</td>
<td>.020 x .020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rectangle:</td>
<td>.016 x .025</td>
<td>.016 x .025</td>
<td>.017 x .022</td>
<td>.017 x .025</td>
<td>.018 x .022</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Length (14”) Wire Sizes</th>
<th>Round:</th>
<th>.012</th>
<th>.014</th>
<th>.016</th>
<th>.018</th>
<th>.020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square:</td>
<td>.022 x .024</td>
<td>.024 x .025</td>
<td>.025</td>
<td>.026</td>
<td>.028</td>
<td></td>
</tr>
<tr>
<td>Rectangle:</td>
<td>.030 x .032</td>
<td>.032 x .036</td>
<td>.036</td>
<td>.040</td>
<td>.045</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Centermark</th>
<th>Permanent Etch marking.</th>
</tr>
</thead>
</table>

Custom Packaging available. See Custom Packaging section.
3-Strand Flat Lingual Retainer

A bonded, flat wire for permanent or semi-permanent retention of tooth position. Bonded to the lingual surface, this is unobtrusive, aesthetic, and requires little patient cooperation.

- Fully annealed 302SS 3-strand wire; allows intricate formation.
- Comparable bend ductility to 8-braid retainer wire on the market.

Ultimate’s 3-Strand wires are made of three equal-sized medical grade Type 302SS wires twisted into a single, fine wire to provide moderate tooth-moving forces. Three-Strand Stainless Steel archwires are best-suited for initial alignment and the finishing stage of treatment.

- Bright surface finish.
- Moderate force, but drops quickly as teeth move.
- Moderate resiliency; measurably better than Solid Stainless Steel wire.

3-Strand Arch Forms

NAT. (3-Strand Stainless Steel wire is also available in 14 inch lengths
Round 3-Strand Stainless Steel wire is available in 30 foot spools.)

Forces

See Technical Data section for force graphs.

| Wire Sizes | Round: | .0155 | .0175 | .0195 | .0215 |
| Square: | .016 x .016 |
| Rectangle: | .016 x .022 | .017 x .025 | .018 x .025 | .019 x .025 |

Centermark Permanent Etch marking.

Custom Packaging available. See Custom Packaging section.

Force graphs of 3-Strand Stainless Steel wires may be found in the Technical Data section.
Coax (6-Strand)

Coax wire is made of five equal-size wires wrapped around a single, same-size core wire. Manufactured of high quality medical grade Type 302SS. Offers low to moderate forces and relatively good resiliency. Appropriate for use in early or late treatment stages.

- Bright finish.
- Low to moderate forces.
- Good for initial alignment.
- Relatively good resiliency.
- Short activation time, as forces drop quickly as teeth move.

8-Braid

Ultimate’s 8-Braid wires are made of eight fine, equal-sized Type 302SS wires braided tightly and rolled to the most popular square and rectangle wire sizes. 8-Braid Stainless Steel archwires combine high resiliency and low tooth-moving forces. Best for early and late treatment stages.

- High resiliency.
- Easy to ligate.
- Low forces.
- Does not fray when cut.
- Great for aligning and for finishing.
- Rectangle wires can be used for added torque control.
Stainless Steel Looped Arches

Accurate loop placement and shape!

<table>
<thead>
<tr>
<th>Arch Form</th>
<th>2- and 4-Loop:</th>
<th>4-Loop only:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire Sizes</td>
<td>.016 x .022</td>
<td>.017 x .025</td>
</tr>
<tr>
<td></td>
<td>.019 x .025</td>
<td>.021 x .025</td>
</tr>
</tbody>
</table>

Anterior Loop Spacing for 2- and 4-Keyhole Loops (measured from center of mesial loops):
22 – 44mm, in 2mm increments

Stainless Steel Keyhole Looped archwires are available in 2- and 4-loop options.
Accurate placement and consistent shape of our Keyhole Loops ensure your customers great results!

- Medical grade 304V Stainless Steel wire.
- Bright, smooth, flat surfaces.
- Used in sliding mechanics for extraction space closure and in non-extraction Class II cases.
- Commonly used in combination with elastics or closed coil springs.

SS Keyhole
Looped Arch Forms

34 & 36 mm
38 & 40 mm
42 & 44 mm

22 & 24 mm
26 & 28 mm
30 & 32 mm

Anterior Loop Spacing indicated within associated Arch Form.
Utility Arches

Multi-purpose archwire, provides focused treatment of anterior or posterior segments. Our Stainless Steel Utility Arch is made of five high quality parts; a precision 304SS anterior segment with preformed step, adjusting tubes made of 316L Stainless Steel, and .016” x .016” preformed legs of 304V Stainless Steel. (Also available in a NiTi anterior segment version.)

• Perfect for leveling of the arch.
• Uprighting of the molars can be achieved with ease.
• Can provide lower incisor intrusion.
• Variety of precision anterior segment lengths.
• Adjustable tube/leg for customized canine/premolar distance.

Multi-purpose archwire!

<table>
<thead>
<tr>
<th>Material</th>
<th>Stainless Steel (304V) anterior segment with stainless steel tubes and legs.</th>
<th>(See also Nickel Titanium Utility Arch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch Form</td>
<td>Utility Arch Shape is specially designed for maximum efficiency. The anterior segment is similar to the anterior of our NAT2 arch form.</td>
<td></td>
</tr>
<tr>
<td>Anterior Segment Lengths</td>
<td>Lower: 24mm 28mm</td>
<td>Upper: 34mm 38mm 42mm</td>
</tr>
<tr>
<td>Wire Sizes</td>
<td>Square .016 x .016</td>
<td></td>
</tr>
</tbody>
</table>

Stainless Steel Utility Archwires do not carry a centermark.
Springs

Nickel Titanium
Stainless Steel
Spring into Action!

For opening, closing, and everything in-between!
Coil springs can be generally categorized into three types: Compression, Extension, and Distalizing.

Compression
Compression, or Open Coil, springs are used to create spaces between teeth or, more simply, to move points away from one another. The coils are compressed when loaded and provide forces ‘outward’ to create and maintain needed space.

Extension
Extension, or Closed Coil, springs are used to close spaces between teeth or, more simply, to move points closer to one another. The coils are extended when loaded and provide retraction forces to close spaces. Extension springs may also be used to maintain spaces for future eruptions or prosthetics.

Distalizing
Distalizing, or Open-Closed Coil, springs are specialized springs used to distalize molars. The springs are compressed when loaded and exert forces against the molars to tip or move them in the proper direction.

Force Determining Factors: Wire size, inside diameter, and spring length.
When comparing coil springs of the same material, these three criteria determine the force of the spring.

Wire size: The greater the wire size, the higher the force.
Inside diameter (lumen): The smaller the inside diameter, the higher the force.
Spring length (e.g. number of active coils): The shorter the length (less coils), the higher the force.

.010” x .030” x 15mm

Need help to close the deal? Ultimate Wireforms’ Customer Service Representatives will assist you in determining the right spring from amongst our wide variety of spring offerings.

Spring Dimensions are in inches unless otherwise noted.
Metric conversions may be found in the Reference section.

WARNING: Nickel Titanium and Stainless Steel products contain nickel.
Nickel Titanium Springs

**Nickel Titanium’s** superelastic qualities make it the perfect material for orthodontic springs. With proper usage, NiTi springs are highly resistant to permanent set and provide comfortable, predictable forces during treatment. In comparison, stainless steel springs exert high initial forces, lose force quickly after placement, and will commonly take a permanent set.

**Ultimate is pleased to offer our Nickel Titanium compression and extension springs in Variable and Superelastic forces to meet the needs of specific treatment plans.**

![Graph of Nickel Titanium Spring Force](image)

**Contents**
- Compression Springs
  - Variable Force
  - Superelastic Force
- Extension Springs
  - Variable Force
  - Superelastic Force
- Distalizing Springs
- Neet Separating Springs
- Class II Springs

Note the gradual slope of the Variable Force Spring results versus the near level slope of the Superelastic Force Spring results. This gradual slope of the Variable Force Spring indicates the gradual increase of force exhibited during activation and gradual decrease of force as the spring returns toward its pre-activation state.

Variable and Superelastic Forces are further explained on the next page.

⚠️ **WARNING:**

Nickel Titanium and Stainless Steel products contain nickel.

Spring sizes are in inches unless otherwise noted.

Metric conversions may be found in the Reference section.
Variable Force Springs

Variable Force springs are our most popular spring. They are designed so that the activation force gradually increases with greater activation and, subsequently, the tooth-moving force gradually decreases as the spring returns to its nominal length. Representative Variable Force Spring 3-Point Bend Test results are indicated in black on the graphs on the preceding page.

In the case of Compression springs, the activation force increases as it is compressed, and the tooth-moving force gradually decreases as the spring returns.

Likewise, in the case of Extension springs, the activation force increases as it is extended, and the tooth-moving force gradually decreases as the spring returns.

Superelastic Force Springs

Superelastic Force springs provide a near constant tooth-moving force throughout their activation range. Both Extension and Compression Superelastic Force springs exhibit this same characteristic; the force remains near constant throughout their applied range. Many doctors find the constant force to be advantageous when loading springs in TAD (Temporary Anchorage Device) treatment. Representative Superelastic Force Spring 3-Point Bend Test results are indicated in red on the graphs on the preceding page.
**NiTi Compression**

Compression, or Open Coil, springs are used to create space between teeth. Compressed during placement, the spring then exerts continuous force against the teeth as they return to original length.

NiTi compression springs are available in both Variable and Superelastic forces.

As explained within the Nickel Titanium Springs Overview page, the tooth-moving force of variable force springs gradually decreases over the activation range. The tooth-moving force of superelastic force springs remains near constant over the activation range. To accommodate your doctors’ preferences, we offer a wide variety of variable and superelastic springs with force levels from light to heavy.

- Made of premium Nickel Titanium wire.
- Provide continuous forces throughout activation.
- Virtually no permanent deformation with proper usage.
- Wide range of forces available.

### Continuous forces to create space!

**Compression Springs** 7 inch lengths (3 per tube) and 15 inch spools.

**Spring Sizes**

<table>
<thead>
<tr>
<th></th>
<th>Variable</th>
<th>Superelastic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Light</td>
<td>Medium</td>
</tr>
<tr>
<td>.009 x .030</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>.010 x .030</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>.010 x .036</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>.010 x .040</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>.010 x .045</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>.011 x .030</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>.012 x .030</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>.012 x .040</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>.012 x .045</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>.014 x .030</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>.014 x .036</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>.014 x .045</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

X Indicates available from stock.

Force graphs of Nickel Titanium Compression Springs may be found in the Technical Data section.

**Helpful Hint:**

- The greater the wire size, the higher the force.
- The smaller the inside diameter (lumen), the higher the force.
- The shorter the length (# of active coils), the higher the force.
NiTi Extension

Extension, or Closed Coil, springs are used to maintain or close spaces. Ultimate offers extension springs in popular lengths with pre-attached Key-end™ eyelets. Our Key-ends are attached firmly to the spring and are manufactured with smooth edges and round holes for easy attachment to TADs (Temporary Anchorage Devices), hooks, or brackets to retract teeth.

Ultimate offers Nickel Titanium Extension Springs in both Variable and Superelastic forces. Variable Extension Springs, our most popular, provide gentle tooth-moving forces that gradually decrease during retraction. Superelastic Extension Springs provide near-constant tooth-moving forces throughout their activation range.

- Springs are made of premium Nickel Titanium wire.
- Provide continuous retraction forces throughout activation.
- Securely attached, precision designed Stainless Steel Key-end eyelets for easy attachment.
- Virtually no permanent deformation with proper use.
- Recommended activation length is two times original spring length.

Continuous forces to close or maintain space!

<table>
<thead>
<tr>
<th>Extension Springs</th>
<th>6mm</th>
<th>9mm</th>
<th>12mm</th>
<th>15mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>With attached Key-end™ Eyelets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable Force</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.010 x .030</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.011 x .030</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>.012 x .030</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Superelastic Force</th>
<th>6mm</th>
<th>9mm</th>
<th>12mm</th>
<th>15mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super Light .009 x .030</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light .010 x .030</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium .011 x .030</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy .012 x .030</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

X Indicates available from stock.

Force graphs of Nickel Titanium Extension Springs may be found in the Technical Data section.

Helpful Hint:
- The greater the wire size, the higher the force.
- The smaller the inside diameter (lumen), the higher the force.
- The shorter the length (# of active coils), the higher the force.

Custom Springs and Eyelets!

Our engineers are experienced at designing custom products and are happy to work with you in all aspects of design and development. Our technical software and fully equipped test lab allow our engineers to create and immediately test prototypes. They will work closely with you to achieve your goal.

The growth of Temporary Anchorage Devices (TAD) usage opens a potential market for these customized spring and eyelet products. A unique spring or eyelet can set you apart from your competition. Why not speak with one of our engineers today?
NiTi Distalizing (Open/Closed Coil)

Distalize molars easily with optimum patient comfort – no headgear or lip bumpers! Nickel Titanium Distalizing Springs are a great alternative for non-compliant patients! The gentle, constant force moves molars with ease. Available in lengths or spools to allow for customized lengths.

- Distalize molars without dependence on patient compliance.
- Nickel Titanium provides gentle, near-constant force.
- Easily slides onto any size archwire.
- Cut between the closed coils to desired length.

<table>
<thead>
<tr>
<th>Distalizing Springs</th>
<th>7 inch lengths (3 per tube) and 15 inch spools.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Sizes</td>
<td>Superelastic Light: .009 x .036</td>
</tr>
<tr>
<td></td>
<td>Superelastic Medium: .010 x .036 .010 x .045</td>
</tr>
<tr>
<td></td>
<td>Superelastic Heavy: .011 x .036 .011 x .045</td>
</tr>
</tbody>
</table>

Force graphs of Nickel Titanium Distalizing Springs may be found in the Technical Data section.

Neet Separating Springs

Nickel Titanium Neet Separating Springs provide the optimal force to quickly create banding space. Results can be expected in as little as 24 hours! Offered in two sizes, they are sized appropriately for separating bicuspid and molars. Easy to insert and remove, your doctors will love the convenience.

- Made of high quality, polished .018 Nickel Titanium wire.
- Light, continuous forces to separate bicuspid or molars.
- Create space for banding without the use of abrasive strips or elastomeric separators.
- Easy to place and remove.

<table>
<thead>
<tr>
<th>Neet Springs (.018) Packaged 25 per pack.</th>
<th>Small (bicuspid) and Large (molar)</th>
</tr>
</thead>
</table>
Class II Springs

Nickel Titanium Extension (Closed coil) springs with pre-attached stainless steel eyelets and ligature wire save your doctors time and inventory. No need to cut springs, handle small attachment ends, or cut & twist lig wire. These are ready to go!

Provides distal movement of maxillary anterior segment with intermaxillary ligation. Class II springs have a greater activation range than stainless steel springs, and do not require patient compliance as needed with Class II elastics.

- Easy ligation for Class II correction.
- Nickel Titanium 15mm Variable force extension spring.
- Secure stainless steel eyelets and ligature wire.
- Provides tooth-moving force over full activation range, versus the rapid loss of force of stainless steel springs.
- Great for non-compliant patients.

Pre-attached and ready to ligate!

Class II Springs (15mm plus attachments) Packaged 10 per tube.

| Spring Sizes | .007 x .020 | .007 x .024 | .007 x .026 | .007 x .030 |

Force graphs of Nickel Titanium Class II Springs may be found in the Technical Data section.
SS Extension and Compression

An economical offering, Stainless Steel springs provide high initial forces; however, unlike the forces of our premium Nickel Titanium springs, stainless steel forces decrease rapidly with tooth movement. Stainless Steel springs are also subject to taking a permanent set when fully compressed or expanded.

- Manufactured of 304V Stainless Steel.
- Spooled 40 inch springs allow for convenient chairside sizing.
- Extension springs are effective in maintaining space openings.
- Compression springs are most commonly used to create space.
Auxiliary Products

Hooks
Stops
Ties
Your Customers are in Complete Control!

From time-saving application of tubes to high quality stainless steel auxiliary items like stops, hooks, and ligs, they’ll have those treatments ‘tied up’ in no time!

⚠️ WARNING: Stainless Steel products contain nickel.

Auxiliary product dimensions are in inches unless otherwise noted. Metric conversions may be found in the Reference section.
**SCORE®
Crimpable Tube Stop Assembly**

**Easy handling and placement of crimpable tube stops on archwires!**

SCORE Assemblies are easily gripped disposable holders pre-loaded with crimpable tube stops. The clinician easily threads the tube stop onto the wire, slides it in the precise position desired, releases the holder with a slight pivot, and crimps. Easy!

**Color-coded holders are pre-loaded with either a Small or Large crimpable tube stop.**

- Tube stops are fully annealed 304SS 2mm long.
  - Small tube ID .019”.
  - Large tube ID .031”.

- Holders are medical grade polycarbonate.
  - Yellow for Small.
  - Orange for Large.

- SCORE Assemblies are sterilizable by steam autoclave.

- Flip-top boxes allow for easy dispensing.

- Patent# US 8,376,741.

**SCORE Assembly Sizes**

<table>
<thead>
<tr>
<th>Small:</th>
<th>Recommended for round .012” through .018” wire.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large:</td>
<td>Recommended for Square:          wires up to a max. of .020” x .020”.</td>
</tr>
<tr>
<td></td>
<td>Rectangle:          wires from .014” x .025” to max. of .019” x .025”.</td>
</tr>
</tbody>
</table>

**Ten SCORE Assemblies** are packaged, all one size, in clear plastic flip-top boxes. Sold in units of boxes.

**Custom Packaging available.** See Custom Packaging section.
**Ball Hooks**

Crimpable Ball Hooks are a more economical, convenient alternative to pre-posted archwires.

- Easily placed on all wire sizes from .012 to .021 x .025.
- One piece construction of 316L material. Straight is 5mm from top of base to tip of ball.
- .022 slotted base allows quick, easy placement at any position on the wire, in or out of the mouth.
- Left and Right Hooks aid in the application of elastics and extension springs.
- Straight ‘hook’ provides for intermaxillary fixation and elastic connection.

Offered in quantities of 10.

**C-Stop™ Crimpable Stops**

C-Stop Crimpable Stops firmly grip the archwire to prevent the wire from sliding beyond the adjacent bracket or buccal tube. Can reduce distal end ‘pokes’. Provides for greater control of tooth movement. C-Stops may also be used as a stop against compression springs to create or maintain space.

- Crimps firmly to rectangular archwires.
- .022 slot for easy attachment.
- May be attached to ligated archwire or to wire before ligation.
- Manufactured of 316L Stainless Steel.

Offered in quantities of 10.

**Crimpable Tube Stops**

Crimpable Tube Stops provide control of the archwire from sliding past the desired location. Stops can reduce emergency patient visits due to wire poking. These small tubes are convenient for use in crowded situations. Our crimpable tube stops are available in two sizes to accommodate most wire sizes.

- 2mm long of 304SS.
- Bright finish.
- Slides easily for custom positioning.
- Two size offerings.

Small: OD .032" ID .0195"
  Recommended for round .012” through .018” wire.

Large: OD .042” ID .0315”
  Recommended for square wire up to a max. of .020”x .020”
  Recommended for rectangle wire .014”x .025” up to a max. of .019”x .025”

Offered in quantities of 25.
Stop Locks

Stop Locks continue to be a secure technique for archwire locking. The stop lock base is made of SS303 material, with .022 slot. It slides easily over the archwire and is held firmly by the nut, made of 316L material, with the twist of the wrench.

- .022 wire slot.
- Use to prevent archwire sliding out of buccal tube.
- Provides a stop for compression spring treatment.

Offered in quantities of 5.

| Stop Locks | One size: .022 wire slot. |
| Wrench     | One size.                  |

Crimpable Split Stops

Our Crimpable Split Stops come as a convenient strip of 10 for easy handling. The practitioner can easily remove an individual stop as needed. Made of 304 annealed Stainless Steel, these stops crimp easily but hold tight.

- Convenient.
- Dead soft for easy crimping.

Offered in quantities of 10 strips of 10 stops. Order per strip of 10.

| Crimpable Split Stops | One size. |

Sometimes it is the little things that matter most. Ultimate’s ball hooks, stops, and stop locks are small but powerful! They provide your customers with the versatility of optimizing archwire configurations. These little parts pack a punch!
Our Preformed Ligature and Kobayashi products are made of annealed 304 Stainless Steel to ensure consistent shape and predictable performance. Used in place of elastic ligatures, your customers will appreciate the ease with which they can be placed over the bracket and tied.

**Ligature Wires**

*Quick, tight tie with just a twist!*

**Preformed Ligature Wires** ensure a quick, tight tie with just a twist!

- No loss of force, as with elastomeric ligations.
- Available in long form for custom fit to the application.
- Can be used for laceback and appliance to appliance attachment.
- Also convenient for securing teeth to prevent unwanted rotation during TAD treatment.
- Short pre-formed ligs have pre-twisted ends which allow for even faster placement.

Sold in packs of 1000 per, with exception of .014 wire which is sold 500 per.

Also available in 1 lb. spools.

<table>
<thead>
<tr>
<th>Wire Sizes</th>
<th>Preformed Long:</th>
<th>Approximately 6 in. long.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.008</td>
<td>.009</td>
</tr>
<tr>
<td>Preformed Short:</td>
<td>Approximately .50 in. long, with pre-twisted ends.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.010 packed 500 per</td>
<td></td>
</tr>
<tr>
<td>Spooled Wire (1 lb. spool):</td>
<td>.008</td>
<td>.009</td>
</tr>
</tbody>
</table>

**Kobayashi Ties**

*Quick tying feature with a preformed hook!*

**Kobayashi Ties** provide a quick tying feature with a preformed hook.

- Spot welded to form a secure hook.
- Allows for quick attachment of springs.
- Perfect for elastic attachment.

Sold in packs of 100 per.

<table>
<thead>
<tr>
<th>Wire Sizes</th>
<th>Preformed Long:</th>
<th>Approximately 6 in. long.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.010</td>
<td>.012</td>
</tr>
<tr>
<td>Preformed Short:</td>
<td>Approximately .75 in. long, with pre-twisted ends.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.012</td>
<td>.014</td>
</tr>
</tbody>
</table>

**Custom Packaging available.** See Custom Packaging section.
Custom Packaging
Grow Your Business with Custom Packaging

Benefits

• Promotion of your brand. Instant recognition; make an impact!

• ‘Cleaner’, more aesthetic presentation than bags or applied labels.

• Products branded and ready for resale.
  - Quick order turnaround.
  - Less handling at your end.
  - Less room for errors.
  - Lot control maintenance.

We Provide

• Premium packaging services and products.
  - Experienced packaging specialists to direct the process.
  - Packaging vendor interface.
  - High quality materials.

• Pre-packaged inventory maintenance at larger quantities.

• Handling/storage of your packaging supplies.

• Affordable, flexible packaging services.

• Value and versatility.

We can meet you where you are and help you to grow.
Win Over Your Customers!

Accentuate Your Products with Affordable, Flexible, Customizable Packing.

Two Levels of Custom Packaging Services to Choose From:

**Platinum** - Really “outshine” your competition with our premium offerings. More color, more convenient, more benefits for you.

**Silver** - Your products will “earn” your doctors’ respect with these custom packaging choices. Don’t “meddle” with anything less!

<table>
<thead>
<tr>
<th>Custom Carton for Single Archwire Pouches</th>
<th>Platinum</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Your design of carton and artwork.</td>
<td>• White carton.</td>
<td></td>
</tr>
<tr>
<td>• 4-color process printing.</td>
<td>• Black ink on-demand printing of product information and logo.</td>
<td></td>
</tr>
<tr>
<td>• Ultimate maintains your packaging supply inventory.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ultimate maintains pre-packaged stock of your products for quick turnaround.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Archwire Envelopes</th>
<th>Platinum</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Your design of carton and artwork.</td>
<td>• Pastel envelopes stocked and ready for use.</td>
<td></td>
</tr>
<tr>
<td>• 4-color process printing.</td>
<td>• Black ink on-demand printing of product information and logo.</td>
<td></td>
</tr>
<tr>
<td>• Product information printed on-demand in black ink.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Label maintenance services provided.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Custom Labels</th>
<th>Platinum</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>• White labels.</td>
<td>• White labels.</td>
<td></td>
</tr>
<tr>
<td>• On-demand color ink printing of your company name, logo, and product information.</td>
<td>• On-demand black print of company and product information.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service Benefits</th>
<th>Platinum</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Your branding to promote your image.</td>
<td>• On-demand print of your company brand and product information.</td>
<td></td>
</tr>
<tr>
<td>• Quick turnaround of premium branded products.</td>
<td>• Fast delivery with flexible order size.</td>
<td></td>
</tr>
<tr>
<td>• Stocking and maintenance of packaging supply inventory.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Technical Data

3-Point Bend Testing

Force Chart
- Wires
- Bending Forces
- Springs
Forming the Future with Innovation and Support

Innovation has been a key to our success and provides new opportunities for your business as well. We understand the orthodontic market and our engineers are continually working on new product offerings as well as product improvements. These new materials and products enable you to offer the best products available to your customers.

The scientists and engineers of Ultimate’s in-house Research and Development Department are trained in cutting-edge technologies and are responsive to your needs, providing both technical and design assistance. Are you or your doctors looking for help in new product development? Ultimate’s R&D group is a great resource for developing your ideas into reality. Put our expertise, from years of orthodontic product design and manufacturing experience, to use for you!

Quality has been at the forefront of Ultimate Wireforms’ business since we began serving customers over 25 years ago. We thoroughly test materials and workmanship to ensure your satisfaction as well as to meet industry regulatory standards. Ultimate’s orthodontic product safety and quality are assured through:

- **ISO 13485** (Quality Standard for Medical Devices) certification.
- Compliance to Risk Management Standard **EN ISO 14971** (incorporates biocompatibility concerns).
- Compliance to the **MDD** for European Union product distribution (CE marking) of all of our orthodontic products.
- Strict adherence to the **GMP as mandated by the FDA** Certificates are available through our website.

Ultimate’s R&D Department ensures that you have the products you need, the quality you want, and the sound technical support that can help you to make the sale. Trust Ultimate.
3-Point Bend Test

**Testing Ensures High Quality**

During our three-point bend test, a load cell is brought into contact with a segment of wire and deflected in accordance with the Orthodontic Wire Standard ISO 15841. Measurements are taken of the loading (ligating) and unloading (tooth-moving) forces at prescribed intervals. The resulting graph reflects these forces, as well as the permanent deformation value for the particular wire.

![Graph of 3-Point Bend Test](image)

Representative Three-Point Bend Test graph of loading and unloading forces for a Nickel Titanium wire. The upper line being the ligating (loading) forces and lower line representing the tooth-moving (unloading) forces. The near horizontal tooth-moving force line is indicative of the low, consistent forces produced by NiTi wires during treatment. The permanent deformation point, or return point of permanent set, is near zero for Nickel Titanium wires.

<table>
<thead>
<tr>
<th>Deflection (mm)</th>
<th>Load (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>200</td>
</tr>
<tr>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td>1.5</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>200</td>
</tr>
<tr>
<td>2.5</td>
<td>200</td>
</tr>
<tr>
<td>3</td>
<td>200</td>
</tr>
</tbody>
</table>

**Technical Data**

![Testing Ensures High Quality](image)

During our three-point bend test, a load cell is brought into contact with a segment of wire and deflected in accordance with the Orthodontic Wire Standard ISO 15841. Measurements are taken of the loading (ligating) and unloading (tooth-moving) forces at prescribed intervals. The resulting graph reflects these forces, as well as the permanent deformation value for the particular wire.

**Force Results at Different Span / Deflection**

<table>
<thead>
<tr>
<th>Deflection (mm)</th>
<th>Load (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>200</td>
</tr>
<tr>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td>1.5</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>200</td>
</tr>
<tr>
<td>2.5</td>
<td>200</td>
</tr>
<tr>
<td>3</td>
<td>200</td>
</tr>
</tbody>
</table>

**Different spans or deflection produce different results.**

**Don’t be fooled by lower loads or decreased hysteresis due to testing of increased spans!**

Ultimate Wireforms performs 3-Point Bend Tests using a 10mm span to a 3.1mm deflection, in accordance with ISO 15841:2006.
Nickel Titanium Maximum Bend Angles

Ultimate Wireforms will bend over backwards for you, but Nickel Titanium does have its limits!

NiTi is so resilient that it is tempting to bend it just a little more; but, how far can it go without being over-stressed and permanent deformation is introduced? The Maximum Bend Angle Guide was developed by Ultimate’s in-house engineers to indicate the maximum bend angle that Superelastic (SE1) force NiTi archwires are capable of sustaining without taking a permanent bend set. Similar bend angle results can be expected for other Superelastic and Heat-activated (Thermal) wires.

We used a three prong (.020” radius) bending plier (jaws depicted as gray circles in diagram above) to replicate the bend angle of a wire exiting a bracket. The maximum bend angle was determined by measuring, on a degree wheel, the angle of deflection prior to permanent deformation.

Maximum Bend Angle Guide

<table>
<thead>
<tr>
<th>Angle (°)</th>
<th>Wire Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>75°</td>
<td>.012 wire</td>
</tr>
<tr>
<td>70°</td>
<td>.013 wire</td>
</tr>
<tr>
<td>60°</td>
<td>.014 and .014 x .025 wire</td>
</tr>
<tr>
<td>50°</td>
<td>.016 and .018 wire</td>
</tr>
<tr>
<td>45°</td>
<td>.020, .016 x .016, .016 x .022, .016 x .025, and .017 x .025 wire</td>
</tr>
<tr>
<td>43°</td>
<td>.018 x .018, .018 x .025, and .019 x .025 wire</td>
</tr>
<tr>
<td>40°</td>
<td>.021 x .025 wire</td>
</tr>
</tbody>
</table>

NOTE: This data is for approximate reference only. Actual bend angles will be dependent upon specifics of a particular case. Actual wire dimensions, bracket position, slot edge radii, wire span, and ligating techniques, etc. will all affect maximum bend angle.
## Metric Conversions

### Round Wire

<table>
<thead>
<tr>
<th>Inch (in.)</th>
<th>Millimeter (mm)</th>
<th>Inch (in.)</th>
<th>Millimeter (mm)</th>
<th>Inch (in.)</th>
<th>Millimeter (mm)</th>
<th>Inch (in.)</th>
<th>Millimeter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.007</td>
<td>.18</td>
<td>.021</td>
<td>.53</td>
<td>.045</td>
<td>1.14</td>
<td>1.34</td>
<td>34.00</td>
</tr>
<tr>
<td>.009</td>
<td>.23</td>
<td>.0215</td>
<td>.55</td>
<td>.046</td>
<td>1.17</td>
<td>1.38</td>
<td>35.00</td>
</tr>
<tr>
<td>.010</td>
<td>.25</td>
<td>.022</td>
<td>.56</td>
<td>.048</td>
<td>1.22</td>
<td>1.42</td>
<td>36.00</td>
</tr>
<tr>
<td>.011</td>
<td>.28</td>
<td>.024</td>
<td>.61</td>
<td>.050</td>
<td>1.27</td>
<td>1.50</td>
<td>38.00</td>
</tr>
<tr>
<td>.012</td>
<td>.31</td>
<td>.025</td>
<td>.64</td>
<td>.051</td>
<td>1.30</td>
<td>1.58</td>
<td>40.00</td>
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<tr>
<td>.013</td>
<td>.33</td>
<td>.026</td>
<td>.66</td>
<td>.052</td>
<td>1.32</td>
<td>1.61</td>
<td>41.00</td>
</tr>
<tr>
<td>.014</td>
<td>.36</td>
<td>.028</td>
<td>.71</td>
<td>.056</td>
<td>1.42</td>
<td>1.73</td>
<td>44.00</td>
</tr>
<tr>
<td>.0155</td>
<td>.39</td>
<td>.030</td>
<td>.76</td>
<td>.060</td>
<td>1.52</td>
<td>1.85</td>
<td>47.00</td>
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<tr>
<td>.016</td>
<td>.41</td>
<td>.032</td>
<td>.81</td>
<td>.050</td>
<td>1.27</td>
<td>1.50</td>
<td>38.00</td>
</tr>
<tr>
<td>.017</td>
<td>.43</td>
<td>.034</td>
<td>.86</td>
<td>.075</td>
<td>19.05</td>
<td>7.0</td>
<td>17.78</td>
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<tr>
<td>.0175</td>
<td>.45</td>
<td>.036</td>
<td>.91</td>
<td>1.02</td>
<td>26.00</td>
<td>14.0</td>
<td>35.56</td>
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<td>.018</td>
<td>.46</td>
<td>.038</td>
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<td>1.10</td>
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<tr>
<td>.019</td>
<td>.48</td>
<td>.040</td>
<td>1.02</td>
<td>1.14</td>
<td>29.00</td>
<td>30.0</td>
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<tr>
<td>.0195</td>
<td>.50</td>
<td>.042</td>
<td>1.07</td>
<td>1.18</td>
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<td>30.0</td>
<td>9.1</td>
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<tr>
<td>.020</td>
<td>.51</td>
<td>.044</td>
<td>1.12</td>
<td>1.26</td>
<td>32.00</td>
<td>30.0</td>
<td>9.1</td>
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</table>

### Square Wire

<table>
<thead>
<tr>
<th>Inch (in.)</th>
<th>Millimeter (mm)</th>
<th>Inch (in.)</th>
<th>Millimeter (mm)</th>
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<tbody>
<tr>
<td>.016 x .016</td>
<td>.41 x .41</td>
<td>.018 x .018</td>
<td>.46 x .46</td>
</tr>
<tr>
<td>.017 x .017</td>
<td>.43 x .43</td>
<td>.020 x .020</td>
<td>.51 x .51</td>
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</table>

### Rectangle Wire

<table>
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<tr>
<th>Inch (in.)</th>
<th>Millimeter (mm)</th>
<th>Inch (in.)</th>
<th>Millimeter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.0075 x .020</td>
<td>.19 x .51</td>
<td>.012 x .055</td>
<td>.31 x .140</td>
</tr>
<tr>
<td>.0075 x .024</td>
<td>.19 x .61</td>
<td>.014 x .025</td>
<td>.36 x .64</td>
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<tr>
<td>.0075 x .026</td>
<td>.19 x .66</td>
<td>.014 x .030</td>
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<td>.0075 x .028</td>
<td>.19 x .71</td>
<td>.014 x .036</td>
<td>.36 x .91</td>
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<td>.0075 x .030</td>
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<td>.014 x .045</td>
<td>.36 x 1.14</td>
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<tr>
<td>.009 x .030</td>
<td>.23 x .76</td>
<td>.014 x .055</td>
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</tr>
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<td>.009 x .036</td>
<td>.23 x .91</td>
<td>.014 x .063</td>
<td>.36 x 1.60</td>
</tr>
<tr>
<td>.009 x .045</td>
<td>.23 x 1.14</td>
<td>.016 x .022</td>
<td>.41 x .56</td>
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<tr>
<td>.010 x .030</td>
<td>.25 x .76</td>
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<td>.010 x .040</td>
<td>.25 x 1.02</td>
<td>.017 x .022</td>
<td>.43 x .56</td>
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<td>.010 x .045</td>
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<tr>
<td>.011 x .030</td>
<td>.28 x .76</td>
<td>.018 x .022</td>
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<tr>
<td>.011 x .036</td>
<td>.28 x .91</td>
<td>.018 x .025</td>
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<tr>
<td>.011 x .045</td>
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<td>.46 x 1.40</td>
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<td>.012 x .030</td>
<td>.31 x .76</td>
<td>.019 x .025</td>
<td>.48 x .64</td>
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<tr>
<td>.012 x .040</td>
<td>.31 x 1.02</td>
<td>.021 x .025</td>
<td>.53 x .64</td>
</tr>
<tr>
<td>.012 x .045</td>
<td>.31 x 1.14</td>
<td>.021 x .055</td>
<td>.53 x 1.34</td>
</tr>
</tbody>
</table>

### Temperature

<table>
<thead>
<tr>
<th>°C</th>
<th>°F</th>
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</thead>
<tbody>
<tr>
<td>45</td>
<td>113</td>
</tr>
<tr>
<td>50</td>
<td>122</td>
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<td>55</td>
<td>131</td>
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<tr>
<td>60</td>
<td>140</td>
</tr>
<tr>
<td>65</td>
<td>149</td>
</tr>
<tr>
<td>70</td>
<td>158</td>
</tr>
<tr>
<td>75</td>
<td>167</td>
</tr>
<tr>
<td>80</td>
<td>176</td>
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<tr>
<td>85</td>
<td>185</td>
</tr>
<tr>
<td>90</td>
<td>194</td>
</tr>
<tr>
<td>95</td>
<td>203</td>
</tr>
<tr>
<td>100</td>
<td>212</td>
</tr>
</tbody>
</table>

### Temperature Conversion Equation

- **C to °F:** Multiply by 9, then divide by 5, then add 32
- **°F to °C:** Deduct 32, then multiply by 5, then divide by 9

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Distance Conversion Equation

- **Inch to millimeter:** Multiply by 25.4
- **Millimeter to inch:** Multiply by 0.0394
Intraoral References

Tooth Naming

Maxillary (Upper) Arch
- Central Incisors
- Lateral Incisor
- Cuspid
- 1st Bicuspid
- 2nd Bicuspid
- 1st Molar
- 2nd Molar

Mandibular (Lower) Arch
- 2nd Molar
- 1st Molar
- 2nd Bicuspid
- 1st Bicuspid
- Cuspid
- Lateral Incisor
- Central Incisors

Tooth Numbering

Universal/National Numbering System indicated to outside of jaw.
Numerical Notation indicated in blue, within tooth.

Regional and Directional Designations
### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activation Range</strong></td>
<td>The distance a spring can be stretched, or the angle an archwire can be bent, without permanent deformation; the useful working range of a spring or archwire.</td>
</tr>
<tr>
<td><strong>Angulation</strong></td>
<td>The tilt of the long axis of a tooth in a mesial or distal direction.</td>
</tr>
<tr>
<td><strong>Anterior</strong></td>
<td>The section of the dental arch that includes teeth mesial to the posterior, thus the cuspsids and incisors.</td>
</tr>
<tr>
<td><strong>Austenite</strong></td>
<td>The high temperature phase of Nickel Titanium wire. In its austenitic phase, NiTi is stiff and elastic and will immediately return to shape after bending. (See Superelastic.)</td>
</tr>
<tr>
<td><strong>Austenite-finish temperature, $A_f$</strong></td>
<td>Temperature at which the metallurgical transformation of a shape memory wire from its low temperature phase to its high temperature phase is complete. (ADA)</td>
</tr>
<tr>
<td><strong>Austenite-start temperature, $A_s$</strong></td>
<td>Temperature at which the metallurgical transformation of a shape memory wire begins.</td>
</tr>
<tr>
<td><strong>Bicuspid</strong></td>
<td>A premolar tooth; a tooth with two cusps or pointed portions of the tooth. (ADA)</td>
</tr>
<tr>
<td><strong>Buccal</strong></td>
<td>The outer region of the arch against the cheek, usually referenced in the distal region.</td>
</tr>
<tr>
<td><strong>Central Incisor</strong></td>
<td>Teeth adjacent to, and on either side of, the midline.</td>
</tr>
<tr>
<td><strong>Compression (as in springs)</strong></td>
<td>Open coil springs, wound such that there are spaces between helixes. In use, the coils are compressed and produce forces outward to create space.</td>
</tr>
<tr>
<td><strong>Curve of Spee</strong></td>
<td>The curvature of the occlusal plane of the teeth, in the mesial/distal direction.</td>
</tr>
<tr>
<td><strong>Cuspid</strong></td>
<td>Having to do with the pointed portion of the tooth, generally referring to the tooth posterior to lateral incisor. Canine.</td>
</tr>
<tr>
<td><strong>Deformation</strong></td>
<td>Misshapen, usually in reference to the angle or percentage that wire does not return to its original shape after being bent; permanent bend set.</td>
</tr>
<tr>
<td><strong>Distal</strong></td>
<td>Referring to the direction away from the median line of the mouth, or to the back of the arch.</td>
</tr>
<tr>
<td><strong>Distalizing (as in springs)</strong></td>
<td>A spring made up of both open and closed coil sections. Generally used to move molars in the distal direction (toward the back of the mouth) to create space for crowded anterior segments or in preparation for fixed orthodontic treatment.</td>
</tr>
<tr>
<td><strong>Elasticity</strong></td>
<td>The apparent ease with which a wire can be deflected without incurring permanent deformation.</td>
</tr>
<tr>
<td><strong>Extension (as in springs)</strong></td>
<td>Closed coil springs, such that the helices are wound tightly together. In use, the coils can retain space or, when extended, produce forces to close space.</td>
</tr>
<tr>
<td><strong>Extrusion</strong></td>
<td>Movement of the tooth along its long axis toward the occlusal plane.</td>
</tr>
<tr>
<td><strong>Friction - Dynamic</strong></td>
<td>The force needed to maintain steady motion when two objects are in contact with one another.</td>
</tr>
<tr>
<td><strong>Friction - Static</strong></td>
<td>The force needed to initiate movement, from rest, between two objects that are in contact with one another.</td>
</tr>
<tr>
<td><strong>Inclination (Torque)</strong></td>
<td>The tilt or tip of the tooth in a buccolingual or faciolingual direction.</td>
</tr>
<tr>
<td><strong>Intrusion</strong></td>
<td>Movement of the tooth along its long axis back into the bone.</td>
</tr>
<tr>
<td><strong>Labial</strong></td>
<td>Referring to the lips, or in the direction toward the lips.</td>
</tr>
<tr>
<td><strong>Lateral incisor</strong></td>
<td>Teeth posterior to the centrals and anterior to the cuspid teeth.</td>
</tr>
<tr>
<td><strong>Leveling</strong></td>
<td>Initial phase of treatment with the purpose of aligning the teeth in the same plane.</td>
</tr>
<tr>
<td><strong>Lingual</strong></td>
<td>Referring to the tooth surface adjacent to the tongue.</td>
</tr>
<tr>
<td><strong>Mandibular</strong></td>
<td>Lower jaw reference.</td>
</tr>
<tr>
<td><strong>Martensite</strong></td>
<td>The low temperature phase of Nickel Titanium wire. In its martensitic phase, NiTi is soft and bends easily. The wire will stay in this state until exposed to heat above its Transformation Temperature Range (TTR). Martensitic wires are responsive to chilling, as they become even softer and more easily bent.</td>
</tr>
<tr>
<td><strong>Maxillary</strong></td>
<td>Upper jaw reference.</td>
</tr>
<tr>
<td><strong>Mesial</strong></td>
<td>Referring to the direction toward the median line of the mouth, or toward the front of the arch.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Molar</td>
<td>Teeth posterior to the premolars (bicuspids).</td>
</tr>
<tr>
<td>Occlusal</td>
<td>The chewing surface of the posterior teeth, or contact points of opposing (maxillary and mandibular) teeth.</td>
</tr>
<tr>
<td>Posterior</td>
<td>The section of the dental arch that includes teeth distal to the anterior, thus the premolar (bicuspid) and molar teeth.</td>
</tr>
<tr>
<td>Premolar</td>
<td>Bicuspids.</td>
</tr>
<tr>
<td>Proclination</td>
<td>The labial inclination of an incisor tooth.</td>
</tr>
<tr>
<td>Resiliency</td>
<td>A material’s ability to resist permanent deformation when bent; often referred to as its springback ability.</td>
</tr>
<tr>
<td>Shape Memory</td>
<td>A characteristic of particular materials, such as Nickel Titanium, that allow the pre-formed material to return to shape by heating the wire through its TTR (transformation temperature range). For example, when martensitic wires are ligated in a maloccluded arch, the body temperature of the patient causes the wire to begin to return to its pre-formed shape; this is the wire’s shape memory characteristic.</td>
</tr>
<tr>
<td>Stress Induced Martensite</td>
<td>The spontaneous phase change from Austenite to Martensite as stress is applied to the material at a temperature above Af. Stress induced Martensite immediately reverts to Austenite as stress is removed, unless permanent deformation has been introduced into the material.</td>
</tr>
<tr>
<td>Superelasticity</td>
<td>A characteristic of certain materials, such as Nickel Titanium, that allows it to recover from bends and deformations without taking a permanent set while in the Austenitic phase. This occurs due to the immediate formation of stress-induced martensite on loading and the immediate reversion to Austenite upon unloading.</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>When stretched, the maximum force a wire can withstand without breaking.</td>
</tr>
<tr>
<td>Thermal</td>
<td>Term used for martensitic wire, as it is responsive to heat-activation. See Martensite.</td>
</tr>
<tr>
<td>Tipping</td>
<td>Applying force to the tooth such that the tooth turns or rotates either mesial-distally or buccal-lingually.</td>
</tr>
<tr>
<td>Torque</td>
<td>Intentional engagement of a wire in torsion to change the inclination of the tooth; also refers to an angled section of an archwire which generates the same result.</td>
</tr>
<tr>
<td>Transformation Temperature Range (TTR)</td>
<td>For shape memory alloys, such as Nickel Titanium, a change of phase occurs, such as from martensite to austenite, in a specific temperature range. The TTR is adjustable by several means to produce desired characteristics.</td>
</tr>
<tr>
<td>Uprighting</td>
<td>Tipping in the mesial-distal direction.</td>
</tr>
</tbody>
</table>
Our Quality System

At Ultimate, quality goes beyond the physical product. We strive to build quality into everything we do from interaction with our customers and vendors, to developing new materials and products, to providing marketing support for customer promotions. We have a strong sense of ‘team’ and work together, within a tight Quality Management System, to best serve our customers.

Quality Policy

Within the guidance of regulatory and statutory requirements, Ultimate’s Quality Management System is committed to ensuring that we meet or exceed our customer requirements while maintaining a suitable, adequate and effective quality system. The involvement of all employees in this effort provides for a unified direction of process improvement and product development, with the aim of enhanced customer satisfaction.

Certificates

Our certified body has provided certification that:

Ultimate Wireforms has established and applies a quality management system for medical devices for the following scope:

- **Design, Development and Production of Orthodontic Products**

  Proof has been furnished that the requirements specified in

  **ISO 13485**

  are fulfilled.

Our Notified Body has authorized approval of Ultimate Wireforms’ compliance to the European Union Medical Device Directive:

- **EC Directive 93/42/EEC Annex II, Article 3**

  **Full Quality Assurance System**

  **Medical Devices**

  Design, Development, and Production of Orthodontic Products

Compliance to this Directive allows Ultimate to label our orthodontic products with the CE mark, **CE**, for ease of movement within the European Community.

Our certificates are available through our website.

Registrations

Ultimate Wireforms, Inc. is a registered establishment under the FDA, Center for Devices and Radiological Health. Our Regulatory Department ensures that all GMP guidelines are met in the production of our high quality medical devices.

Establishment registration may be viewed on the FDA website: [http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfRL/registration.cfm](http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfRL/registration.cfm)
Our Policies and Related Information

Ultimate Trade Names

Black-Ti®
CTA®
Global™
Gradient-3®
Optima™
SCORE®
The Dimple®
Ultra Therm®

Ultimate Wireforms’ Return Policy

We take great strides to offer to you the highest quality products and each piece is backed by the people and processes of Ultimate. We stand firmly behind our products. All orthodontic products are warranted against defects in material and workmanship for the normal working life of the product. Abuse, misuse or normal wear and tear is not warranted. Should you have a concern with the quality of one of our products, call us immediately with product and lot information and we will thoroughly investigate your concern. The final determination of warranty status is Ultimate Wireforms’.

A Customer Service issued Return Merchandise Authorization (RMA) number must accompany all returned merchandise.

Disclaimer

Our commitment to offer the highest quality at the best value generates ongoing improvements to product offerings, processes, and services. To that end, we reserve the right to add, delete, and/or modify product offerings at any time and without notice.

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