tapered short surgical system









BioHorizons is committed to developing evidence-based and scientifically proven products. This commitment started with the launch of the Maestro implant system in 1997 and remains in full force today with our most recent launches, the Tapered Short implant and Laser-Lok multi-unit abutments.

The focus of BioHorizons on science, innovation and service enables our customers to confidently use our comprehensive portfolio of dental implants, prosthetics, biologics products and digital solutions making BioHorizons one of the fastest growing companies in the dental industry.

BioHorizons helps customers restore smiles in 90 countries throughout North America, Europe, South America, Asia, Africa and Australia.

global leader for biologic based solutions



SCIENCE

BioHorizons uses science and research to create unique dental implant products with proven surgical and esthetic results.

INNOVATION

Game-changing technologies like Laser-Lok implants and abutments as well as versatile products like the OD Secure, computer-guided surgery and custom-milled abutments have made BioHorizons a leading implant company.

products sold in 90 countries



SERVICE

BioHorizons understands the importance of providing excellent service. Our global network of professional representatives and our highly trained customer care support team are well equipped to meet the needs of patients and clinicians.

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tapered short



limited space

The new Tapered Short implant is a solution for areas of limited space, where preserving anatomical landmarks is critical.



Laser-Lok[®] zone creates a connective tissue attachment, retaining crestal bone.



threadform

Deep aggressive buttress threads provide primary stability and compressive bone loading. platform switching 15 degree bevel increases lateral threads.

cutting flutes helical cutting flutes increase surface contact¹ and are self tapping.



restorative ease

45° conical internal hex connection is color-coded for quick identification and component matching.

product information & ordering

BioHorizons Tapered Short implants offer a solution for cases with limited vertical bone height, potentially expediting treatment by eliminating the need for bone grafting. The Tapered Short implant design features an aggressive thread profile and tapered body for primary stability, even in compromised situations. A platform-switched, dual-affinity, Laser-Lok surface offers crestal bone retention and connective tissue attachment for flexible placement.



features:

- 25% more surface area compared to Tapered Internal
- dual-affinity Laser-Lok surface for crestal bone retention and connective tissue attachment
- primary stability from anatomically tapered body and deep aggressive thread profile
- conical internal hex for a rigid connection and stable restoration

body diameter	4.6mm	5.8mm
prosthetic connection	🔶 3.5mm	4 .5mm
Laser-Lok zone	1.8mm	1.8mm
apical diameter	3.7mm	4.9mm
platform switch	0.5mm	0.6mm
6.0mm length	TSL4606	TSL5806
7.5mm length	TSL4607	TSL5807



TAPERED SHORT INSTRUMENTS

Drills

Tapered Short implants can be placed using minimal instrumentation due to a new stepped drill design which streamlines the surgical protocol. Tapered Short drills consist of a universal starter drill with intermediate and final drills that are diameter-specific. The stepped starter and intermediate drills provide rapid osteotomy preparation and enhanced control during surgery. The optional final drill can be used depending on bone density and desired implant stability.

features:

- stepped cutting flute design for a streamlined protocol
- color-coded drills for easy identification
- non-reflective surface for high visibility
- creates 12-20 osteotomies depending on bone density
- recommended drill speed 1,500 RPM





DS32HD	Starter Drill, 2.2/3.2mm
DS37HD	4.6 Intermediate Drill, 2.8/3.65mm
DS41HD	4.6 Final Drill, 4.1mm
DS47HD	5.8 Intermediate Drill, 3.6/4.65mm
DS54HD	5.8 Final Drill, 5.4mm

Cover Caps



 PYCC
 3.5mm Cover Cap*

 PGCC
 4.5mm Cover Cap*

Use during submerged surgical healing. Hand-tighten with the .050" (1.25mm) Hex Driver. Titanium Alloy. *Included with implant but can also be ordered separately.*

ANCILLARY INSTRUMENTS





TSC2046HD4.6mm HD Crestal Bone DrillTSC2058HD5.8mm HD Crestal Bone Drill

ANCILLARY INSTRUMENTS

Bone Profiling Burs



 PYBP
 3.5mm Bone Profiling Bur & Guide

PGBP 4.5mm Bone Profiling Bur & Guide

Use at implant uncovery to remove excess crestal bone for proper abutment seating. Screw the guide into the implant and align the profiling bur for precise bone removal. Match profiler & guide color to prosthetic connection.

Torque Wrenches



BIOTORO BioHorizons Adjustable Torque Wrench

Adjustable torque wrench desiged to attach to all 4mm drivers from BioHorizons. Supplied with a dual direction mechanism that allows for insertion and removal functions. When the desired torque is reached (a choice of 10Ncm to 30Ncm) the torque wrench snaps to avoid over torquing.



ATW ITL Precise Adjustable Torque Wrench

Place both implants and abutments with 9 distinct torque settings (15, 20, 25, 30, 35, 40, 45, 50 and 60 Ncm). A simple twist of the handle locks in precision–engineered torque values and guarantees accuracy and repeatability. Fits any 4mm square component.





AGYR-15500

Torque Control 15500

Ergonomic design is the ideal solution for access to screws placed in the posterior. The 7 predetermined torque values (10, 15, 20, 25, 30, 32 and 35 Ncm) make it a tool of extreme precision.

EL-C12374 Elos Adjustable Torque Wrench

Lightweight titanium design is easy to use as a ratchet or adjustable torque wrench with visual indicators for 15, 30, 40, 50, 60, 70, 80 and 90 Ncm. Comes packaged with a 4mm square adaptor. Quickly disassembles for cleaning. No calibration required.

EL-C8521	Elos Replacement Bit, 4mm Square Adaptor
EL-C8381	Elos Replacement Bit, Handpiece

Implant Spacer / Depth Probe



144-300 Implant Spacer / Depth Probe

Use to provide intraoral measurements. Multi-functional tool for marking implant spacing on the ridge and probing osteotomy depth.

Laser-	Lok	Heal	ling.	Ał	out	ments

		abutment diameter	3mm height	5mm height
MO	3.5mm platform, Laser-Lok	4.0mm	PYNHA3L	PYNHA5L
Nar	4.5mm platform, Laser-Lok	5.0mm	PGNHA3L	PGNHA5L
ular	3.5mm platform, Laser-Lok	4.5mm	PYRHA3L	PYRHA5L
Reg	4.5mm platform, Laser-Lok	5.5mm	PGRHA3L	PGRHA5L
de	3.5mm platform, Laser-Lok	6.0mm	PYWHA3L	PYWHA5L
Ŵ	4.5mm platform, Laser-Lok	7.0mm	PGWHA3L	PGWHA5L



Y = Yellow (3.5mm) platform G = Green (4.5mm) platform N, R or W = Narrow, Regular or Wide emergence 3 or 5 = 3mm or 5mm abutment height L = Laser-Lok

Use Laser-Lok healing abutments when a Laser-Lok abutment restoration is planned to inhibit epithelial downgrowth, establish a connective tissue attachment and retain crestal bone. When a Laser-Lok component is used and temporarily removed for impression making or other restorative procedures, keep the removed Laser-Lok component in sterile saline until reinserting into the site. Hand-tighten with the .050" (1.25mm) Hex Driver. Titanium Alloy.

Note: See L02015-003 Handling of Laser-Lok Abutments for more information.

Standard Healing Abutments

		abutment diameter	1mm height	2mm height	3mm height	5mm height
Mo	3.5mm platform	4.0mm	PYNHA1	PYNHA2	PYNHA3	PYNHA5
Nar	4.5mm platform	5.0mm	PGNHA1	PGNHA2	PGNHA3	PGNHA5
ular	3.5mm platform	4.5mm	-	PYRHA2	PYRHA3	PYRHA5
Reg	4.5mm platform	5.5mm	-	PGRHA2	PGRHA3	PGRHA5
de	3.5mm platform	6.0mm	-	-	PYWHA3	PYWHA5
Wi	4.5mm platform	7.0mm	-	-	PGWHA3	PGWHA5

Hand-tighten with the .050" (1.25mm) Hex Driver. Titanium Alloy.

The 3.5mm, 4.5mm and 5.7mm healing abutments are laser marked for easy intraoral identification of the prosthetic platform, emergence and height:

Y = Yellow (3.5mm) platform

G = Green (4.5mm) platform

B = Blue (5.7mm) platform

N, R or W = Narrow, Regular or Wide emergence

1, 2, 3 or 5 = 1mm, 2mm, 3mm or 5mm abutment height

3.0 healing abutments are not laser marked due to their small size.



SURGICAL MANUAL INTRODUCTION



This surgical manual serves as a reference for using the Tapered Short implants and surgical instruments. It is intended solely to provide instructions on the use of BioHorizons products. It is not intended to describe the methods or procedures for diagnosis, treatment planning, or placement of implants, nor does it replace clinical training or a clinician's best judgment regarding the needs of each patient. BioHorizons strongly recommends appropriate training as a prerequisite for the placement of implants and associated treatment.

The procedures illustrated and described within this manual reflect idealized patient presentations with adequate bone and soft tissue to accommodate implant placement. No attempt has been made to cover the wide range of actual patient conditions that may adversely affect surgical and prosthetic outcomes. **Clinician judgment as related to any specific case must always supersede any recommendations made in this or any BioHorizons literature**.

Before beginning any implant surgical procedure with BioHorizons implants:

- Read and understand the Instructions for Use that accompany the products.
- Clean and sterilize the surgical tray and instruments per Instructions for Use.
- Become thoroughly familiar with all instruments and their uses.
- Study surgical kit layout and iconography.
- Design a surgical treatment plan to satisfy the prosthetic requirements of the case.

For short implants, clinicians should closely monitor patients for any of the following conditions: peri-implant bone loss, changes to implant's response to percussion, or radiographic changes in bone to implant contact along the implant's length. If the implant shows mobility or greater than 50% bone loss, the implant should be evaluated for possible removal. If the clinicians choose a short implant, then clinicians should consider a two-stage surgical approach, splinting a short implant to an additional implant, and placement of the widest possible fixture. Allow longer periods for osseointegration and avoid immediate loading.

Indications

BioHorizons Tapered Short Implants are intended for use in the mandible or maxilla as an artificial root structure for single tooth replacement or for fixed bridgework and dental retention. The implants may be restored using delayed loading, or with a terminal or intermediate abutment for fixed or removable bridgework, and for overdentures.

SURGICAL PROTOCOLS

Two-Stage Protocol



Implant with cover cap in a two-stage protocol.

In a two-stage surgery, the implant is placed below the soft tissue and protected from occlusal function and other forces during osseointegration. A low-profile cover cap is placed on the implant to protect it from the ingress of soft tissue.

Following osseointegration, a second procedure exposes the implant and a transmucosal healing abutment is placed to allow for soft tissue healing and development of a sulcus. Prosthetic restoration begins after soft tissue healing.

Single-Stage Protocol



Implant with healing abutment in a single-stage protocol.

Single-stage surgery may be accomplished by placing a healing abutment at the time of implant surgery. This eliminates the need for a second procedure. Although the implant is not in occlusal function, some forces can be transmitted to it through the exposed transmucosal element.

Prosthetic restoration begins following osseointegration of the implant and soft tissue healing.

IMPLANT PLACEMENT LEVEL & SPACING

Placement in Uneven Ridges



When placing the implant in an uneven ridge, prepare the osteotomy and place the implant so the bone/soft-tissue junction is within the Laser-Lok transition zone. This will allow both soft tissue and bone to attach to the Laser-Lok collar. If the ridge discrepancy is more than the Laser-Lok transition zone, leveling the ridge can be considered.

Implant-to-Tooth & Implant-to-Implant Spacing



The osteotomy centerpoint required to maintain a specific implantto-tooth spacing is calculated according to this formula: 1/2 (implant body diameter) + the desired spacing.



The osteotomy center-to-center measurement required to maintain a specific edge-to-edge spacing between two implants is calculated according to this formula:

1/2 (sum of 2 implant body diameters) + the desired spacing.



During implant placement, clinicians must apply their best judgment as to the appropriate spacing for individual patient conditions.

SURGICAL KIT & DRILL SEQUENCE



Important Considerations

- A pre-operative 30-second rinse with a 0.12% Chlorhexidine Digluconate solution is recommended.²
- Drilling must be done under a constant stream of sterile irrigation. A pumping motion should be employed to prevent over-heating the bone. Surgical drills and taps should be replaced when they are worn, dull, corroded or in any way compromised. BioHorizons recommends replacing drills after 12 to 20 osteotomies.³ A Drill-usage Tracking Chart is available at biohorizons.com to record this important information.
- There is a risk of injury to the mandibular nerve associated with surgical drilling in posterior mandibular regions. To minimize the risk of nerve injury, it is imperative that the clinician understands the drill depth markings as they relate to the implant length to produce the desired vertical placement of the implant.

OSTEOTOMY INITIALIZATION & MODIFICATION

Tapered Short Starter Drill

Purpose: Initiate osteotomy.

- Chisel-tip design eliminates "skating" on osseous crest
- Matte finish for increased visibility under operatory lights
- •1,500 RPM





Tapered Short Drills - Intermediate & Final



- Purpose: Incrementally widen the osteotomy
- Depth-marked for reference
- Efficient cutting drill design collects bone for autografting
- The drill tip has limited end cutting. However, the osteotomy depth can be increased with these drills as needed
- Matte finish for increased visibility under operatory lights
- Osteotomy may be finished with intermediate drill in soft bone to achieve higher insertion torque
- For higher insertion torque, the final drill may be used to widen the coronal area of the osteotomy (instead of full depth)
- Color-coded by implant body diameter (gray=universal starter drill, green=4.6mm and blue=5.8mm)
- •1,500 RPM





6mm implant to intermediate drill relationship





6mm implant to final drill relationship

Crestal Bone Drills



Purpose: Remove cortical bone at ridge crest for pressurefree seating of the implant collar.

- Use when dense cortical bone is present at crest
- Rounded non-end cutting hub centers drill in osteotomy
- Use following the final width increasing drill for each implant
- Color-coded by implant body diameter (green=4.6mm and blue=5.8mm)
- 1,000 RPM



FINAL BONE PREPARATION & PLACEMENT

Implant Drivers



Purpose: Engage the implant's internal hex to drive implants into the osteotomy.

- Implant level drivers are color coded by prosthetic connection:
- yellow/green=3.5/4.5mm platform
- 30 rpm or less⁴



Tapered Short implants can only be placed using HD drivers (TYGIDH & TYGIDR).



Implant Pick-up



To pick up the implant, align the driver hex with the implant hex and press firmly to engage the PEEK snap ring.

Vial caps are color coded by body diameter (4.6mm=green, 5.8mm=blue).

Cover caps and implant drivers are color coded by prosthetic platform (3.5mm=yellow, 4.5mm=green).



Implant Placement



Place the apex of the implant into the osteotomy and begin rotating slowly. The driver hex will engage when the driver is slowly rotated under apical pressure.

If too much resistance is felt during insertion, reverse the implant to relieve pressure and re-insert into the osteotomy. If the final drill was not used while preparing the osteotomy, remove the implant and revise the osteotomy with the final drill.





When seating the implant, use the corresponding dimples on the driver to orient one internal hex flat perpendicular to the implant angulation plane. Doing so verifies that an angled abutment will correct the angulation.

HEALING PROTOCOLS

Cover Caps for Two-stage Protocol



- **Purpose:** Protects prosthetic platform in two-stage (submerged) surgical protocol for bone level implants.
- Irrigate implant to remove blood and other debris:
- Use an antibacterial paste to decrease the risk of bacterial growth
- Thread clockwise into implant body
- Color-coded by prosthetic platform
- Hand-tighten (10-15 Ncm) utilizing .050" (1.25mm) Hex Driver





cover cap

The cover cap for the mount-free implant is mounted in the vial cap.

Healing Abutments for Single-stage Protocol



- **Purpose:** Transmucosal element for developing soft tissue emergence with narrow, regular, wide emergence or Simple Solutions prosthetic components.
- Color-coded by prosthetic platform
- The 3.5 and 4.5mm healing abutments are laser marked for easy intraoral identification; for example: YR3=Yellow (3.5mm) platform / Regular Emergence / 3mm High
- If a Laser-Lok temporary or final restoration is planned, a Laser-Lok healing abutment is required
- Hand-tighten (10-15 Ncm) utilizing .050" (1.25mm) Hex Driver



Post-operative Instructions

A period of unloaded healing time is often recommended to allow for integration between the bone and implant surface. This is dependent on individual patient healing rates and bone quality of the implant site. Each case must be independently evaluated.

The patient should be instructed to follow a post-surgical regimen including cold packs for 24 hours post-implantation. The patient's diet should consist of soft foods and possibly dietary supplements. Pharmacological therapy should be considered as the patient's condition dictates.

If a removable prosthesis is used during the initial healing phase, a soft liner material should be used to prevent pressure on the surgical site. Relieve the prosthesis over the implant site prior to the soft liner application. Periodically check the patient's soft tissue and bone healing using clinical and radiographic evaluations.

Ongoing hygiene for the implant patient is vital. Hygiene recall appointments at three-month intervals are suggested. Instruments designed for implant abutment scaling, such as Implacare[®] instruments from Hu-Friedy[®] should be utilized. The stainless steel handles may be fitted with assorted tip designs for hygiene on natural teeth. The Implacare[®] scalers contain no glass or graphite fillers that can scratch titanium implant abutments.

APPENDIX

Bone Profilers



Purpose: In cases where excess crestal bone has been created, use a bone profiler at implant uncovery to contour the bone. This will provide the necessary clearance for proper abutment seating.

- Profiler guide protects implant platform
- Color-coded by prosthetic platform (yellow=3.5mm, green=4.5mm)
- 850-2,500 rpm drill speed with steady sterile irrigation



Image showing bone growth at 3 months. (Nevins et al, IJPRD, 2013)





Do not use the profiler without the guide in place.

Using an .050" hex driver, remove the surgical cover cap from the implant and place the profiler guide that matches the color of the prosthetic platform. Use the profiler with copious amounts of sterile irrigation. Once the excess bone and soft tissue are removed, unscrew the guide and seat the appropriate prosthetic component.

ICON LEGEND & REFERENCES

Symbol Descriptions for Product Labeling



Tapered Short Product Labeling

body diameter	prosthetic platform
4.6mm (green box label, vial cap & white blister label)	3.5mm (yellow internal hex & cover cap)
5.8mm (blue box label, vial cap & white blister label)	4.5mm (green internal hex & cover cap)

References

- 1. Surface contact of Tapered Short implants; TSL4606, TSL4607 and TSL5806, TSL5807 is increased compared to Tapered Internal Plus implants TLXP4607 and TLXP5807 respectively.
- 2. The influence of 0.12 percent chlorhexidine digluconate rinses on the incidence of infectious complications and implant success. Lambert PM, Morris HF, Ochi S. J Oral Maxillofac Surg 1997;55(12 supplement 5):25-30.
- Heat production by 3 implant drill systems after repeated drilling and sterilization. Chacon GE, Bower DL, Larsen PE, McGlumphy EA, Beck FM. J Oral Maxillofac Surg. 2006 Feb;64(2):265-9.
- 4. Root Form Surgery in the Edentulous Mandible: Stage I Implant Insertion. CE Misch. Contemporary Implant Dentistry Second Edition. Mosby: St. Louis, 1999. 347-369.

ORDERING & WARRANTY INFORMATION

Territory Manager:	
cell phone:	
email and/or fax:	

BioHorizons Lifetime Warranty on Implants and Prosthetics: All BioHorizons implants and prosthetic components include a Lifetime Warranty. BioHorizons implant or prosthetic components will be replaced if removal of that product is due to failure (excluding normal wear to overdenture attachments).

Additional Warranties: BioHorizons warranties surgical drills, taps and other surgical and restorative instruments.

(1) Surgical Drills and Taps: Surgical drills and taps include a warranty period of ninety (90) days from the date of initial invoice. Surgical instruments should be replaced when they become worn, dull, corroded or in any way compromised. Surgical drills should be replaced after 12 to 20 osteotomies.³

(2) Instruments: The BioHorizons manufactured instrument warranty extends for a period of one (1) year from the date of initial invoice. Instruments include drivers, implant site dilators and BioHorizons tools used in the placement or restoration of BioHorizons implants.

Return Policy: Product returns require a Return Authorization Form, which may be acquired by contacting Customer Care. The completed Return Authorization Form must be included with the returned product. For more information, please see the reverse side of the invoice that was shipped with the product.

Disclaimer of Liability: BioHorizons products may only be used in conjunction with the associated original components and instruments according to the Instructions for Use (IFU). Use of any non-BioHorizons products in conjunction with BioHorizons products will void any warranty or any other obligation, expressed or implied.

Treatment planning and clinical application of BioHorizons products are the responsibility of each individual clinician. BioHorizons strongly recommends completion of postgraduate dental implant education and adherence to the IFU that accompany each product. BioHorizons is not responsible for incidental or consequential damages or liability relating to use of our products alone or in combination with other products other than replacement or repair under our warranties.

Distributed Products: For information on the manufacturer's warranty of distributed products, please refer to their product packaging. Distributed products are subject to price change without notice.

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