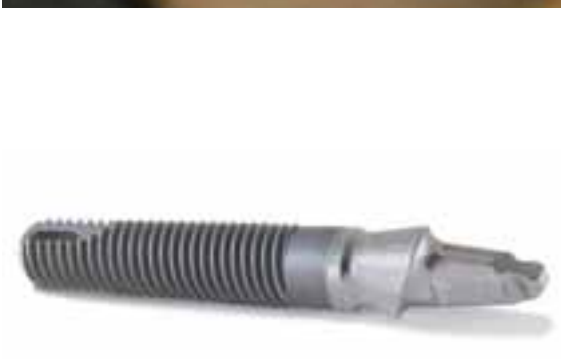




Zimmer®
One-Piece
Implant
System



Surgical and Restorative Manual



zimmer | dental
Confidence in your hands™

Sometimes the perfect solution is simply perfect.

Engineered to perform as well as the trusted and successful *Tapered Screw-Vent*[®] Implant, *Zimmer One-Piece Implants* bring greater simplicity and convenience to the restoration process.

- One-piece construction eliminates micromovement and helps to minimize bone loss
- One-piece design eliminates secondary component placement, saving time and improving soft tissue apposition
- Pre-contoured abutment delivers better esthetics with little or no preparation
- Zimmer's proprietary *MTX*[™] Surface has been proven to increase bone-to-implant contact¹⁻²
- Available in a wide range of lengths in both straight and angled abutment versions
- Tapered design mimics natural tooth geometry, increasing placement options
- Titanium construction and one-piece design offer maximum strength and stability

1. Todisco M, Trisi P. Histomorphometric evaluation of 6 dental implant surfaces after early loading in humans. *J Oral Implantol* 2006;32. In press.

2. Trisi P, Marcato C, Todisco M. Bone-to-implant apposition with machined and MTX microtextured implant surfaces in human sinus grafts. *Int J Periodontics Restorative Dent* 2003;23(5):427-437.



Zimmer One-Piece Implant



Tapered Screw-Vent Implant



Hex-Lock™ Contour Abutment

Treatment Planning

Zimmer One-Piece Implant indications

Zimmer One-Piece 3.0mmD Implants are indicated for the support and retention of fixed single-tooth and fixed partial denture restorations in the mandibular central and lateral incisor and maxillary lateral incisor regions of partially edentulous jaws. The 3.0mmD *Zimmer One-Piece Implant* must be splinted if two or more are used adjacent to each other, and may be immediately restored with a temporary prosthesis that is not in functional occlusion.

Zimmer One-Piece 3.7mmD and 4.7mmD Implants are designed for use in the maxilla or mandible for immediate loading, or for loading after a conventional healing period. Implants may be used to replace one or more missing teeth. Immediate loading is indicated when there is good primary stability and an appropriate occlusal load.

The use of the *Zimmer One-Piece Surgical Kit* for the placement of *Zimmer One-Piece Implants* is highly recommended. Please refer to the Instructions for Use for further information on indications and contraindications of *Zimmer One-Piece Implants*.

General Information

Overview and Treatment Planning

Surgical Procedures

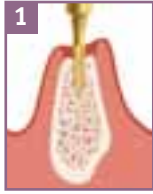
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Drilling Sequence for Zimmer One-Piece Implants

3.0mmD Zimmer One-Piece Implant (3.5mmD Prosthetic Margin)



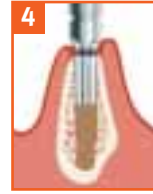
0201
2.1mm/1.6mmD
Drill



SV2.3D
2.3mmD
Drill



ZOP28D
2.8mm/2.4mmD
Drill



**OPTIONAL FOR
DENSE BONE**
ZOPTT30
3.0mmD
Cortical Bone Tap

3.7mmD Zimmer One-Piece Implant (4.5mmD Prosthetic Margin)



0201
2.1mm/1.6mmD
Drill



SV2.3D
2.3mmD
Drill



SV2.8D
2.8mmD
Drill



TSV3D
3.4mm/2.8mmD
Drill



**OPTIONAL FOR
DENSE BONE**
ZOPTT37
3.7mmD
Cortical Bone Tap

4.7mmD Zimmer One-Piece Implant (5.5mmD Prosthetic Margin)



0201
2.1mm/1.6mmD
Drill



SV2.3D
2.3mmD
Drill



TSV3D
3.4mm/2.8mmD
Drill



FOR SOFT BONE
SV3.8D
3.8mmD
Drill



FOR DENSE BONE
TSV4D
4.4mm/3.8mmD
Drill



**OPTIONAL FOR
DENSE BONE**
ZOPTT47
4.7mmD Cortical
Bone Tap

Note: In most cases, short drills with an overall length of 11mm are available for placement of 10mL Zimmer One-Piece Implants in jaw locations with limited vertical access. See product catalog for a complete listing.

Zimmer One-Piece Surgical Tools

Drills						
						
0201 2.1mm/1.6mmD Drill	SV2.3D 2.3mmD Drill	ZOP2.8D 2.8mm/2.4mmD Drill	SV2.8D 2.8mmD Drill	TSV3D 3.4mm/2.8mmD Drill	SV3.8D 3.8mmD Drill	TSV4D 4.4mm/3.8mmD Drill

Bone Taps			Drivers				Try-ins		
									
ZOPTH30 3.0mmD Bone Tap	ZOPTH37 3.7mmD Bone Tap	ZOPTH47 4.7mmD Bone Tap	ZOPDRS 3.0mmD Driver, Straight	ZOPDRA 3.0mmD Driver, Angled	ZOPDRH 3.7mm/4.7mmD Driver, Straight and Angled, 24mmL	ZOPDRT 3.7mm/4.7mmD Driver, Straight and Angled, 19mmL	ZOP30ST ZOP30AT	ZOP37ST ZOP37AT	ZOP47ST ZOP47AT
(Angled Versions Not Pictured)									

Caps and Copings				
				
Contour Impression Cap	Contour Provisional Coping	Contour Waxing Coping	Contour Healing Cap	Contour Abutment Analog

Zimmer One-Piece Implants, Straight, with MTX Surface

Implant Diameter	Abutment Emergence Profile	10mmL	11.5mmL	13mmL	16mmL
3.0mmD	3.5mm	ZOP30S10	ZOP30S11	ZOP30S13	•
3.7mmD	4.5mm	ZOP37S10	ZOP37S11	ZOP37S13	ZOP37S16
4.7mmD	5.5mm	ZOP47S10	ZOP47S11	ZOP47S13	ZOP47S16

Zimmer One-Piece Implants, 17° with MTX Surface

Implant Diameter	Abutment Emergence Profile	10mmL	11.5mmL	13mmL	16mmL
3.0mmD	3.5mm	ZOP30A10	ZOP30A11	ZOP30A13	•
3.7mmD	4.5mm	ZOP37A10	ZOP37A11	ZOP37A13	ZOP37A16
4.7mmD	5.5mm	ZOP47A10	ZOP47A11	ZOP47A13	ZOP47A16



1. Accessing the implant site

A conventional flap is recommended for better visualization of the osseous morphology.

*Flapless surgery is only recommended when adequate bone quantity and quality have been established through appropriate diagnostic procedures.



2. Initiating the osteotomy

The 2.1mm/1.6mmD Drill [0201] is used to initiate the osteotomy to a depth of 7mm (the top of the cutting flutes). The drill's aggressive cutting geometry allows it to function well in dense cortical bone. Care must be taken to ensure that the drill does not over-prepare the osteotomy to a greater depth than desired.



3. Verifying position and angulation

The Surgical Try-in replicates the exact geometry of the implant's prosthetic portion. It is placed in the osteotomy to verify position and angulation. A radiograph may be taken to evaluate the osteotomy's proximity to adjacent anatomic structures. Preliminary decisions on size, angulated versus straight, and one-piece versus two-piece implant may be determined at this point.



4. Drilling the osteotomy – 2.3mmD drill

Use the 2.3mmD drill to create an intermediate hole to the depth of the implant to be used.

To place a 3.0mmD *Zimmer* One-Piece Implant, proceed to step 5.

To place a 3.7mmD or 4.7mmD *Zimmer* One-Piece Implant, proceed to step 12.



5. Drilling the osteotomy – 2.8mm/2.4mmD drill

The osteotomy is widened using the 2.8mm/2.4mmD drill. The drill has depth marks for reference at 10, 11.5 and 13 millimeters.



6. Optional tapping of the osteotomy

The Bone Tap is recommended in sites where dense bone (D1-D2) is present. Tap in a clockwise direction at a speed of 15-30 rpm or less. Remove the tap by reversing the handpiece and unthreading at the same speed or less.

To use the handpiece with the Bone Tap or driver, insert the RHD2.5 into the handpiece and insert it into the driver or Bone Tap.



7. Picking up the implant

The touch-free packaging allows the implant to be transferred from the package to the patient using the driver and ratchet or handpiece.

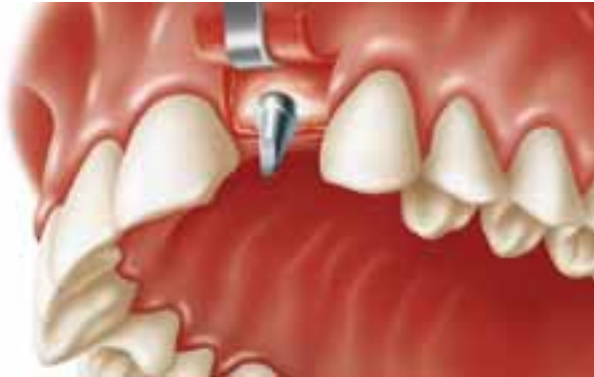


8. Inserting the implant

The driver tool engages the implant externally and has a vertical line to assist with aligning the driver in the correct position. Ensure the vertical line on the driver is lined up with the vertical line on the inner vial.

Push down gently to seat the implant into the driver.

Using the ratchet or the handpiece, thread the implant into the osteotomy (15-30 rpm or less). The seating torque should be set at 35 Ncm.



9. Positioning the Zimmer One-Piece 3.0mmD Implant

Ideal positioning of the *Zimmer* One-Piece Implant results in the top of the implant portion being as close as possible to the crestal bone level, with the lower aspect of the prosthetic margin positioned buccally/labially. The distance between the top of the implant portion and the lower buccal/labial margin is 1.2mm, and the implant also seats 1.2mm per revolution. Therefore, this distance can be used as a reference to determine whether an additional implant revolution can be made. Utilize the vertical line on the driver to indicate buccal/labial placement of the lower margin.



10. Preparing the abutment

If necessary, adjust the angulation and height of the prosthetic section with a high-speed handpiece and a metal finishing bur (not included in the *Zimmer* One-Piece Surgical Kit). Modification of the prosthetic section must always be done under a continuous stream of irrigation to prevent overheating.

Minimal abutment preparation in the patient's mouth is advised. Titanium residues, vibration and heat associated with preparing the abutment may have possible adverse effects on the implant or adjacent bone. If excessive inter-oral preparation is required, use of a two-piece implant is recommended.



11. Preparing the implant for the healing phase

Place the Contour Healing Cap on the *Zimmer* One-Piece Implant. The healing cap can be cemented into place at the time of surgery. Alternatively, cement an immediate provisional crown into place.

Proceed to step 21 to restore the implant.



12. Widening the osteotomy

For 3.7mmD *Zimmer* One-Piece Implants:

The osteotomy is widened using the 2.8mmD drill. The drill has depth marks for reference at 10, 11.5, 13 and 16 millimeters.

For 4.7mmD *Zimmer* One-Piece Implants:

The osteotomy is widened using the 3.4mm/2.8mmD drill. The drill has depth marks for reference at 10, 11.5, 13 and 16 millimeters.



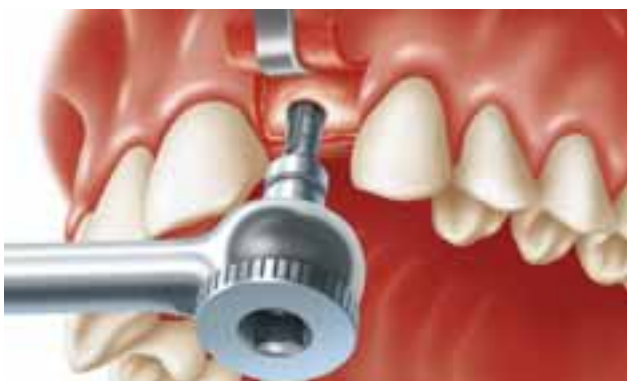
13. Finalizing the osteotomy

For 3.7mmD *Zimmer* One-Piece Implants:

Use the 3.4mm/2.8mmD drill as the final for the 3.7mmD *Zimmer* One-Piece Implant.

For 4.7mmD *Zimmer* One-Piece Implants:

In soft bone, use the 3.8mmD drill as the final. In dense bone, use the 4.4mm/3.8mmD drill instead as the final to widen the osteotomy further.



14. Optional tapping of the osteotomy

The Bone Tap is recommended in sites where dense bone (D1-D2) is present. Tap in a clockwise direction at a speed of 15-30 rpm or less. Remove the tap by reversing the handpiece and unthreading at the same speed or less.

To use the handpiece with the Bone Tap or driver, insert the RHD2.5 into the handpiece and insert it into the driver or Bone Tap.



15. Picking up the implant

The touch-free packaging allows the implant to be transferred from the package to the patient using the driver and ratchet or handpiece.



16. Inserting the implant

Line up the flat side of the driver to the lower prosthetic margin as the implant is retrieved from the vial. This step will aid in positioning the lower prosthetic margin to the buccal/labial aspect for the implant's final positioning.

The driver tool engages the implant internally. Push down gently to seat the driver into the implant. Make sure the driver is fully engaged and bottomed in the hexagon socket before applying torque.

Using the ratchet or handpiece, thread the implant into the osteotomy (15-30 rpm or less).



17. Positioning the Zimmer One-Piece 3.7mmD and 4.7mmD Implant

Ideal positioning of the *Zimmer One-Piece* Implant results in the top of the implant portion being as close as possible to the crestal bone level, with the lower aspect of the prosthetic margin positioned buccally/labially. The distance between the top of the implant portion and the lower buccal/labial margin is 1.2mm, and the implant also seats 1.2mm per revolution. Therefore, this distance can be used as a reference to determine whether an additional implant revolution can be made. If the flat on the 3.7mmD or 4.7mmD driver was lined up with the lower prosthetic margin when the implant was retrieved from the vial, the flat on the driver will indicate the buccal/labial aspect for the implant's final placement.



18. Preparing the abutment

If necessary, adjust the angulation and height of the prosthetic section with a high-speed handpiece and a metal finishing bur (not included in the *Zimmer One-Piece* Surgical Kit).

Modification of the prosthetic section must always be done under a continuous stream of irrigation to prevent overheating.

Minimal abutment preparation in the patient's mouth is advised. Titanium residues, vibration and heat associated with preparing the abutment may have possible adverse effects on the implant or adjacent bone. If excessive inter-oral preparation is required, use of a two-piece implant is recommended.



19. Preparing the implant for the healing phase

Place the Contour Healing Cap on the *Zimmer One-Piece* Implant. The healing cap can be cemented into place at the time of surgery. Alternatively, cement an immediate provisional crown into place.

20. Restoring the implant

Proceed to step 21 to restore the implant.



Restorative Procedures



Provisional and Final Restoration



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21. Exposing the abutment portion of the Implant

Remove the Contour Healing Cap from the *Zimmer One-Piece Implant* and clean off any remaining cement.



22. Making the abutment-level impression

Place the impression cap over the abutment portion of the implant, making sure the cap is aligned with the contours of the margin. The long, flat side needs to be in the buccal/labial position. Snap the cap into place.

Please note: If height reduction to the abutment is required, take an impression utilizing the Contour Impression Cap prior to height modification. Then communicate the reduction height to the laboratory for final crown modification. If modification to the abutment margin is required, do not use the Contour Impression Cap. A traditional direct impression technique, ensuring complete exposure of the modified margin, must be used if the abutment margin has been adjusted.



23. Completing the impression procedure

An elastomeric impression material (e.g. vinyl polysiloxane or poly-ether) is recommended. Inject light-bodied impression material around the Contour Impression Cap in the patient's mouth and fill the tray with medium- or heavy-bodied impression material in preparation for a full-arch impression.

Place the tray into the patient's mouth and allow the impression material to set according to the manufacturer's recommendations. Remove the tray from the patient. The Contour Impression Cap will be picked up and retained in the impression. Take an impression of the opposing arch and record bite registration.



24. Fabricating and cementing the provisional prosthesis

Prepare the provisional crown by applying acrylic to the Contour Provisional Coping. Cement the provisional prosthesis onto the *Zimmer One-Piece Implant* with soft-access cement. Alternatively, use the provisional coping as a base to allow for the pick-up of a shell crown for the temporary restoration.



25. Attaching the Contour Abutment Analog

Align the Contour Abutment Analog with the corresponding color-coded Contour Impression Cap and insert into the impression, snapping the analog into place. The abutment analog will replicate the *Zimmer One-Piece Implant* in the stone model.



26. Pouring the working cast

Pour the model in die stone using soft tissue material to represent gingival contours. Utilize the bite registration to articulate the working model with the opposing arch.



27. Utilizing the Contour Waxing Coping

Place the Contour Waxing Coping on the abutment analog, aligning the coping with the contours of the margin.

Note: The coping does not have built-in retention when seated on the abutment analog. Use wax or resin to seal the margins.



28. Fabricating the coping pattern

Create the coping pattern according to routine crown-and-bridge procedures.



29. Casting

Invest and cast the pattern in noble to high noble ceramic alloy according to the manufacturer's guidelines. Follow routine laboratory procedures to fit and finish the framework. Send it to the clinician for a patient try-in. The dentist should confirm that a passive fit has been achieved before the veneering material is applied.



30. Finishing the final prosthesis

Finish the metal framework by applying the veneering material according to the manufacturer's protocol. Send the finished restoration to the clinician for final delivery.



31. Delivering the final prosthesis

Remove the provisional restoration and any remaining cement from the abutment portion of the *Zimmer One-Piece Implant*. Seat the final prosthesis onto the *Zimmer One-Piece Implant* and confirm the marginal fit. Check the occlusion. Verify that no additional finishing or adjustment is required. Cement the final prosthesis with the cement of choice. (To facilitate future retrievability, a soft-access cement may be used.)



32. Final prosthesis in place

Remove any exuded cement from the margin area. Provide the patient with oral hygiene instructions prior to release.

