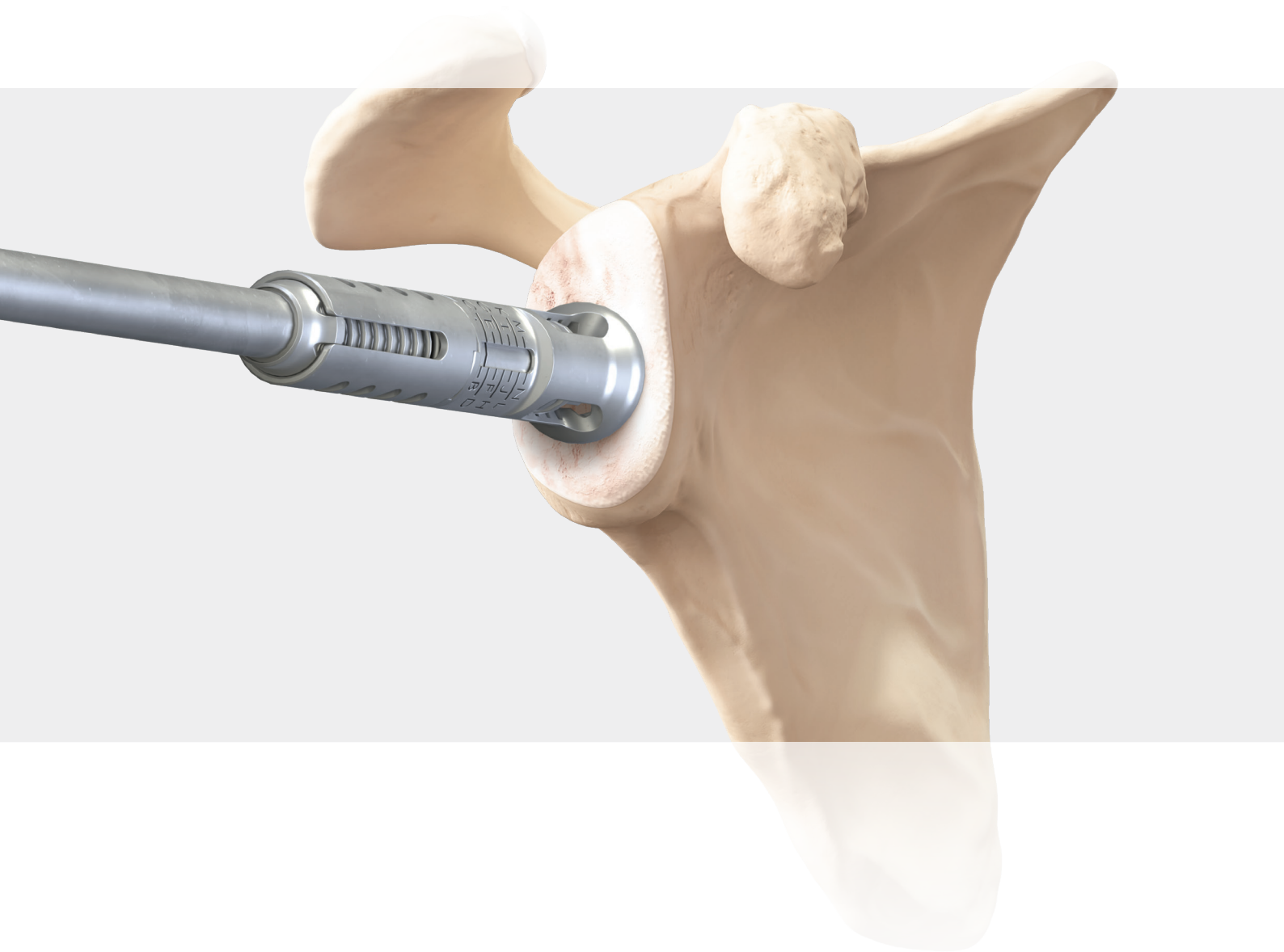
Virtual Implant Positioning™ (VIP™) Glenoid Reamer

Surgical Technique



Arthrex®

Introduction

The Virtual Implant Positioning™ (VIP™) system provides an accurate method for visualizing, understanding, and planning anatomic and reverse total shoulder arthroplasty cases, along with the necessary instrumentation for executing surgical plans.

The system's web-based portal helps preoperatively plan the location of glenoid implant components specific to each patient's anatomy. Reusable, adjustable instrumentation facilitates accurate intraoperative placement of the glenoid guide pin and reaming based on the surgeon-approved preoperative plan.

How it works

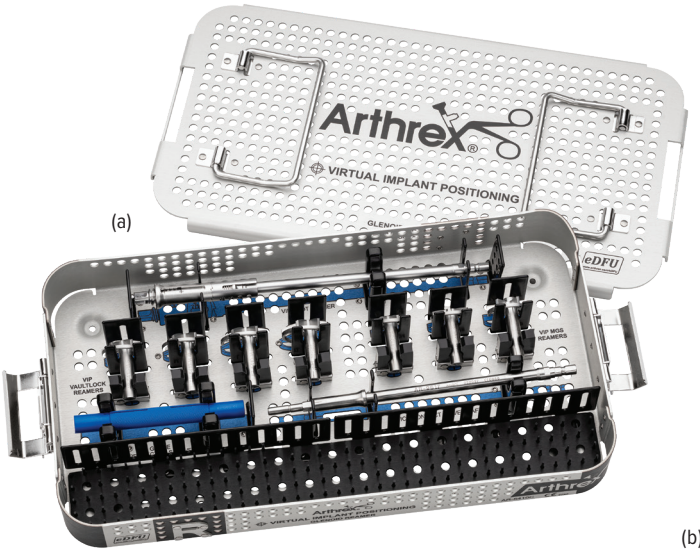
Arthrex uses unique and proprietary 3D preoperative planning software and the patient's uploaded CT data to replicate patient anatomy, which enables virtual planning and positioning of shoulder arthroplasty implants.

Arthrex planning technicians develop a preoperative plan that is subsequently reviewed and adjusted, as necessary, by the surgeon. Once a surgical plan is finalized in the VIP system portal, a virtual model of the patient's bony anatomy is used to determine settings for the glenoid targeter and reamer. The targeter is used intraoperatively to transfer the planned glenoid guide pin position and trajectory from the software to the patient's anatomy. The reamer is then used intraoperatively to transfer the depth of ream from the software to the patient's anatomy.

This technique describes the setup and calibration of the VIP glenoid reamer based on an approved preoperative plan.

Tray and VIP Plan

Ensure that the VIP reamer tray (**[a]** AR-**5410S**) and VIP preoperative plan **(b)** are available before beginning the procedure. Verify that the preoperative plan matches with the specific patient to be operated on.



(a)

(b)

Virtual Implant Positioning™ Arthrex

Preoperative Plan and Glenoid Targeter Instructions	
Patient	RT. SHOULDER 138749
MRN	RT. 138749
Surgeon	Dr. Test Surgeon1
Customer Order Number	12-22-03-0010
Procedure / Side	RSA / Right
Date of Surgery	2022-Aug-31
Native Version (deg)	**-4.2**
Native Inclination (deg)	**7.7**
Implant	Arthrex MGS BP
Implant Size	24mm ⌀, 30mm Post
Augment	Full 20 Deg
Glenosphere or Inlay	39mm ⌀ Standard
Implant Version (deg)	**-10**
Implant Inclination (deg)	**0**
Implant Roll (deg)	110
Humeral Head Size (mm)	49.4
Backside Seating (%/mm²)	100% / 266mm²
Max Depth/Max Gap (mm)	-4mm / 5mm Excluding Augment
Depth of Ream	D
Planning Engineer	VIP_Support@Arthrex.com
Expiration Date	2022-Sep-11
Comments	VALIDATION MGS Aug

Slot	Targeter Leg Length (mm)	Glenoid Calibrator/GTII Height Settings
A	17 mm	X - 21 Anterior Overhang
B	13 mm	W - 32 On Surface
C	11 mm	X - 37 On Surface
D	12 mm	X - 45 On Surface
E	17 mm	Z - 35 Anterior Overhang

VIP™
Virtual Implant Positioning

Indications for Use

The VIP™ glenoid targeter is a manual instrument system intended to facilitate preoperative planning and intraoperative placement of the central glenoid guide pin used in the preparation of the glenoid in total shoulder systems that utilize a central guide pin for preparing the glenoid to receive the glenoid implant. The VIP glenoid targeter is indicated for use with the Univers™ II and Univers Apex total shoulder systems, keeled or pegged glenoid components, the Univers VaultLock® glenoid component, as well as the Univers Revers™ baseplate component (Universal Glenoid™) and Univers Revers Modular Glenoid System (MGS) baseplates.

The VIP glenoid reamer is intended for use with the VIP glenoid targeter in total shoulder systems that utilize a central guide pin for preparing the glenoid to receive the glenoid implant. The VIP glenoid reamer is indicated for use with the Univers VaultLock glenoid component and the Univers Revers MGS baseplates.

The indications for use of the Arthrex shoulder systems with which the VIP glenoid instrumentation is intended to be used are the same as those described in the labeling for these shoulder systems.

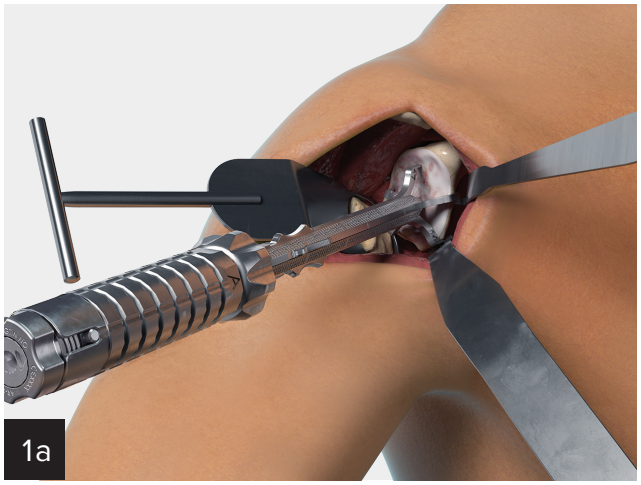
The OrthoVis preoperative plan is a preoperative plan created via the OrthoVis software that facilitates accurate preoperative planning and intraoperative placement of the glenoid component in total shoulder replacement.

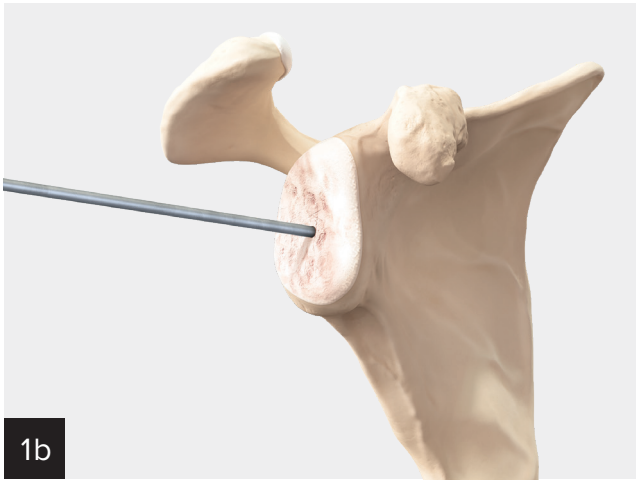
The VIP glenoid targeter is indicated for use with the Univers II and Univers Apex total shoulder systems, keeled or pegged glenoid components, the Univers VaultLock glenoid component, as well as the Univers Revers baseplate component (Universal Glenoid) and Univers Revers modular glenoid system (MGS) baseplates. The VIP Glenoid Reamer is indicated for use with the Univers VaultLock glenoid component and the Univers Revers MGS baseplates.

The indications for use of the Arthrex shoulder systems with which the OrthoVis preoperative plan is intended to be used are the same as those described in the labeling for these shoulder systems.

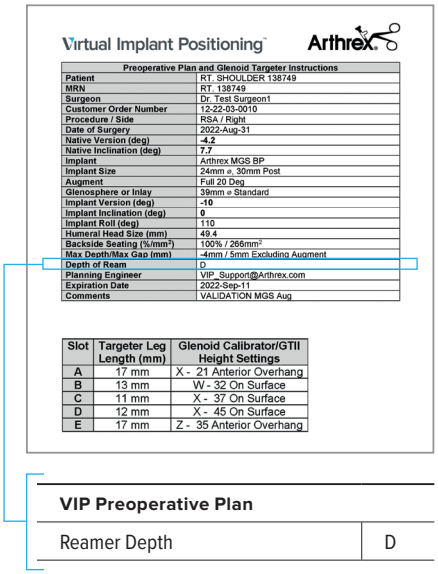
Contraindications:

- The Arthrex VIP instrumentation and OrthoVis preoperative plan are not to be used with any shoulder replacement system or component other than the total shoulder systems and components identified in the indications for use of the VIP system.
- The contraindications for the total shoulder systems with which the Arthrex VIP instrumentation and OrthoVis preoperative plan are indicated for use remain the same as those described in each implant system's labeling.
- The glenoid targeter should not be used if the legs of the instrument are not stable or move when locking nut is tightened and used for guide pin placement, and the failure should be reported to Arthrex.
- If the seating of the glenoid targeter instrument on the patient cannot be exactly matched with the seating of the instrument on the glenoid 3D model, the surgeon must choose to either address the issue so that the glenoid targeter instrument seating is matched between the patient and the glenoid 3D model or alternatively, refrain from using the glenoid targeter.





Place the 2.8 mm guide pin into the glenoid using the VIP targeter as shown in the VIP Targeter Surgical Technqiue (LT1-000040-en-US).



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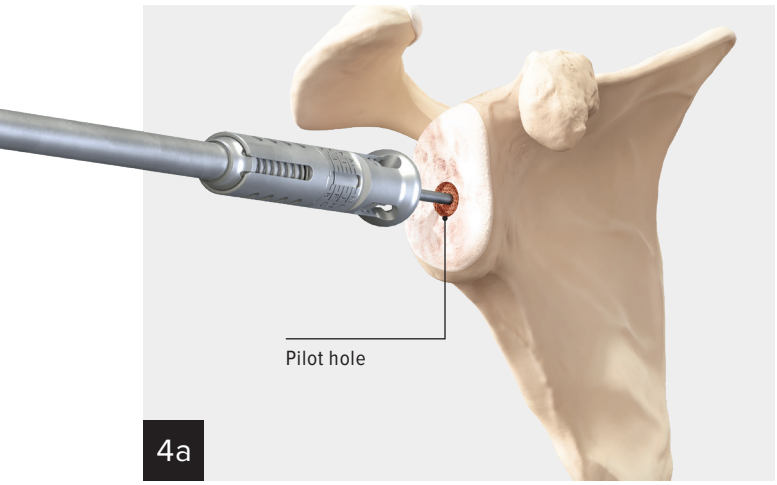
VIP Preoperative Plan	
Reamer Depth	D

Transfer the reamer depth as determined in the VIP™ preoperative plan to the VIP reamer by adjusting the ratcheting collar to the appropriate letter. Hold the proximal end of the VIP reamer while turning the distal collar counterclockwise.

3

Use the VIP pilot reamer to ream the planned depth.



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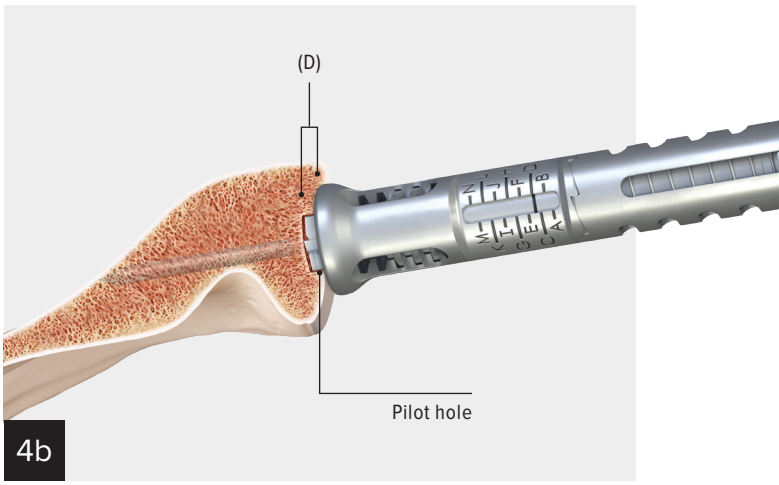
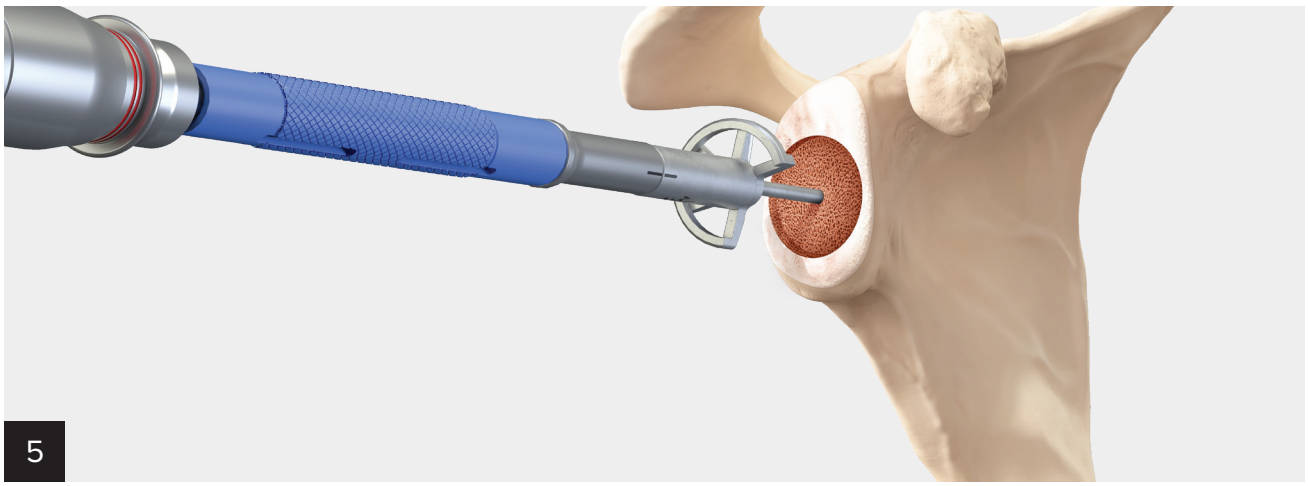


4b

The VIP pilot reamer creates a pilot hole to the depth **(D)** determined in the VIP plan.



5

Place the secondary reamer over the guide pin to ream the perimeter of the glenoid surface. Select the reamer in accordance with the implant that is being used. The reamer will stop at the surface that was created during the pilot reaming step. Refer to Table 1 for detailed description of the reaming steps. Once reaming is complete refer to the noted surgical technique for details on final preparation and implantation.

Table 1. Reaming Steps Based on Selected Implant

Glenoid Implant	Step 1	Step 2	Step 3	Step 4
Univers Revers™ Modular Glenoid System (MGS) Baseplate	VIP™ Pilot Reamer (AR-5410-01)	VIP Glenoid Reamer, MGS, 24/28 ■ AR-5410-24/28	Proceed per LT1-00112-EN	
Univers Revers Augmented Full-Wedge MGS Baseplate		VIP Glenoid Reamer, Augmented MGS assembled with Angled Sleeve (Depicted in Figure 1) ■ AR-9676 ■ AR-9597-10/20 ■ AR-5410-AMGS-S/M/L	Proceed per LT1-000169-EN	
Univers Revers Augmented Half-Wedge MGS Baseplate (LT1-000169-EN)		VIP Glenoid Reamer, Paleo ■ AR-5410-P	VIP Glenoid Reamer, Augmented MGS assembled with Angled Sleeve ■ AR-9676 ■ AR-9597-15/25 ■ AR-9675-S/M/L/XL	Proceed per LT1-000169-EN
Univers VaultLock® Glenoid (LT1-000009-en-US)		VIP Glenoid Reamer, VaultLock ■ AR-5410-VLS/VLM/VLL/VLXL	Proceed per LT1-000009-en-US	
Univers VaultLock Augmented Glenoid		VIP Glenoid Reamer, VaultLock ■ AR-5410-VLS/VLM/VLL/VLXL	Augmented VaultLock Reaming Assembly ■ AR-9676 ■ AR-9297-15/25 ■ AR-9275-S/M/LXL	Proceed per LT1-000205-en-US

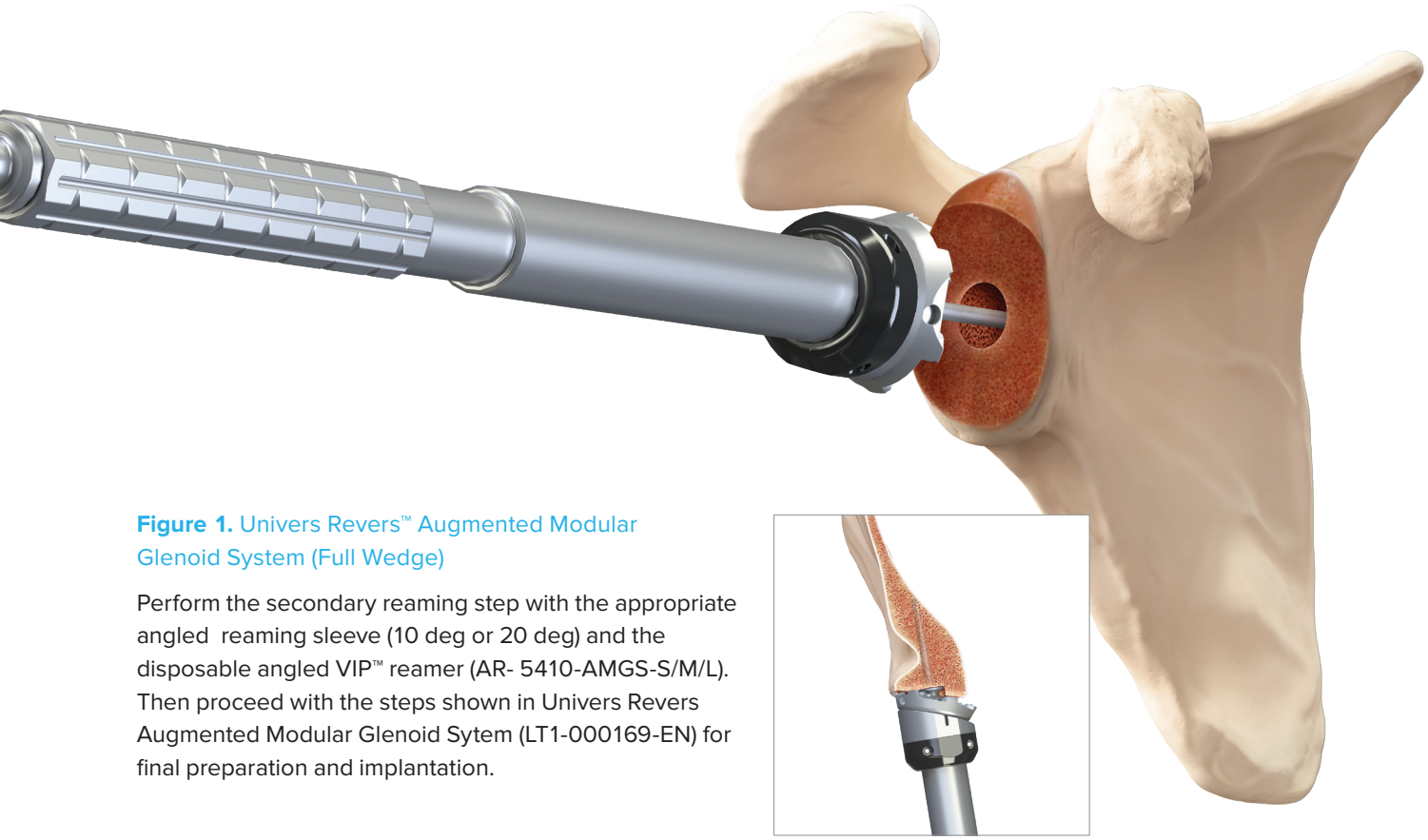
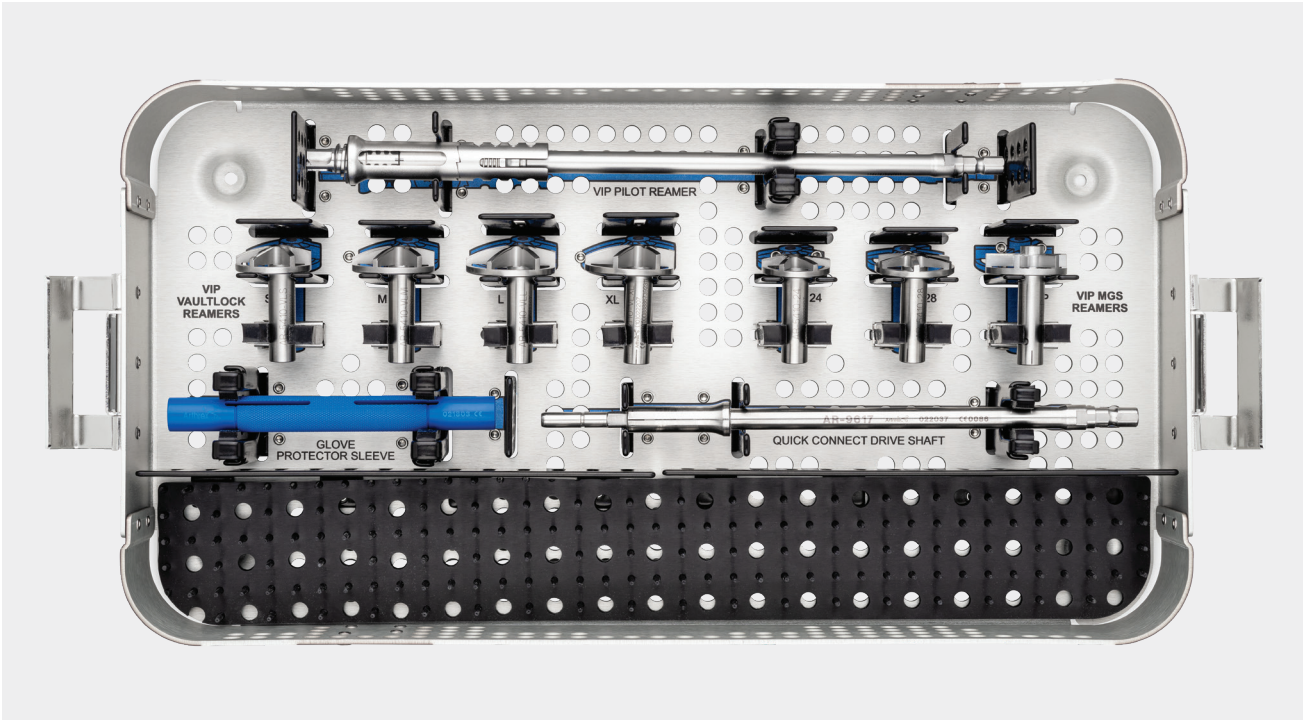


Figure 1. Univers Revers™ Augmented Modular Glenoid System (Full Wedge)

Perform the secondary reaming step with the appropriate angled reaming sleeve (10 deg or 20 deg) and the disposable angled VIP™ reamer (AR- 5410-AMGS-S/M/L). Then proceed with the steps shown in Univers Revers Augmented Modular Glenoid Sytem (LT1-000169-EN) for final preparation and implantation.



Reusable Instruments

Product Description	Item Number
Virtual Implant Positioning™ Glenoid Reamer, pilot	AR-**5410-01**
VIP™ Glenoid Reamer, Univers Revers™ MGS 24 mm	AR-**5410-24**
VIP Glenoid Reamer, Univers Revers MGS 28 mm	AR-**5410-28**
VIP Glenoid Reamer, Univers VaultLock® glenoid, small	AR-**5410-VLS**
VIP Glenoid Reamer, Univers VaultLock glenoid, medium	AR-**5410-VLM**
VIP Glenoid Reamer, Univers VaultLock glenoid, large	AR-**5410-VLL**
VIP Glenoid Reamer, Univers VaultLock glenoid, X-large	AR-**5410-VLXL**
VIP Glenoid Reamer, paleo	AR-**5410-P**
Modular Reamer Shaft	AR-**9617**
Glove Protector Sleeve	AR-**9216-4**

Disposable Instruments

Product Description	Item Number
VIP Glenoid Reamer, Univers Revers Augmented MGS, small	AR-**5410-AMGS-S**
VIP Glenoid Reamer, Univers Revers Augmented MGS, medium	AR-**5410-AMGS-M**
VIP Glenoid Reamer, Univers Revers Augmented MGS, large	AR-**5410-AMGS-L**

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Caution: Federal law restricts this device to sale by or on the order of a physician.

Arthrex®

This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience, and should conduct a thorough review of pertinent medical literature and the product's directions for use. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level and/or outcomes.

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