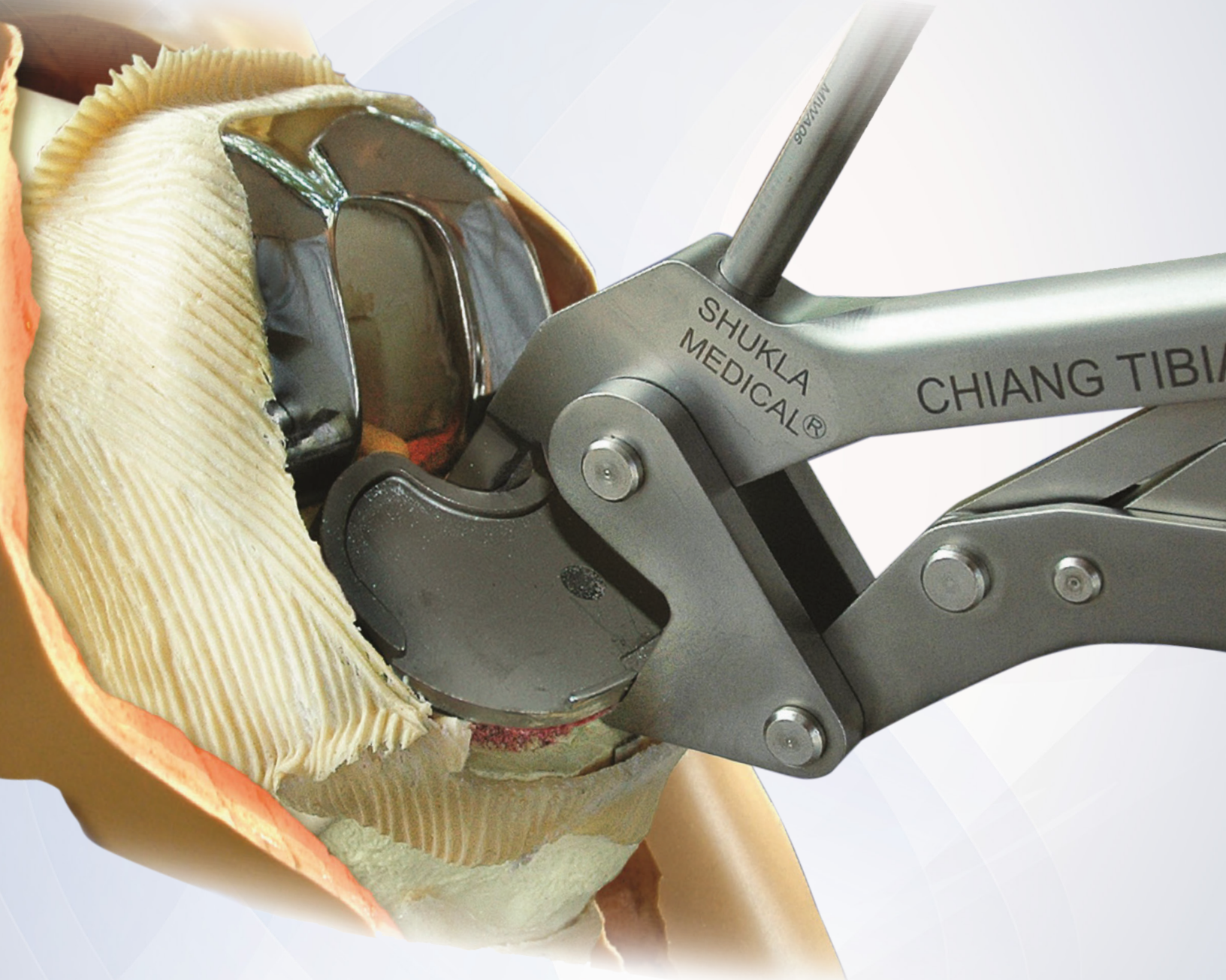


Xtract-All[®] KNEE

Universal Knee Implant Extraction System

SURGICAL TECHNIQUE GUIDE



SHUKLA MEDICAL[®]

Universal Orthopedic Extraction Technologies

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Retrograde osteotome with slotted mallet

Intended Use

The Xtract-All® Knee (S9KNE) Universal Knee Implant Extraction System is intended for use during revision procedures for the removal of femoral & tibial knee components manufactured by a wide range of orthopedic companies.

Instrumentation from Shukla Medical is recommended for use only within the intended design, and only by licensed healthcare professionals. Any uses other than those indicated may cause adverse results to the instrumentation or to the patient.

Indications for Use

The Xtract-All® Knee (S9KNE) Universal Knee Implant Extraction System is indicated for use during any revision procedure in which the femoral component and/or tibial component of a knee implant must be removed.

Additional Recommendations

The Xtract-All® Knee (S9KNE) Universal Knee Implant Extraction System is recommended for use in conjunction with the Xtract-All® Maxi Large Bone Screw Removal System and the Xtract-All® Screw Universal Broken & Stripped Screw Extraction System.

This technique guide describes surgical instruments developed in conjunction with:

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Lafayette, CO

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Orthopedic Surgeon
King of Prussia, PA

Preoperative

- Appropriate x-rays and surgical notes may be used to identify manufacturer, brand, location, & condition of implanted hardware.
- The surgeon should be familiar with general principles of revision surgery and techniques for removal of implants.
- The instrumentation should be inspected for visible wear prior to use (see *Reusable Instrument Inspection Manual*, FCD-17089). Do not use the product if damage is suspected.
- Only recommended cleaning and sterilization guidelines should be used.

Operative

- The surgeon should be cautious with limb position change and/or excessive force exertion while extracting implants using the instrumentation provided in the tray.

Storage





- It is recommended to store all Shukla Medical instrumentation in a clean, dry environment. Under 50% relative humidity; ≤75°F/24°C.
- Proper handling and storage of the instrumentation is mandatory. Long-term use of this system may produce stresses and cause weakness, which could become a focal point for failure.

CLEANING & STERILIZATION

For detailed sterilization instructions, please refer to industry standards ANSI/AAMI ST79:2012 & A1:2012 and ANSI/AAMI ST8:2001.

NOTE: All Shukla Medical surgical instruments require manual cleaning with a neutral pH cleanser. Open and disassemble all instruments, making sure to remove all contamination during cleaning. Instruments must be reassembled prior to sterilization. Machine washing is not recommended. Maintenance and care using an autoclaveable lubricant on movable parts is required to preserve the life of the instrument. For more cleaning, inspection, maintenance, and care tips, contact Shukla Medical directly.

For detailed cleaning and sterilization instructions, please visit www.ShuklaMedical.com/Sterilization

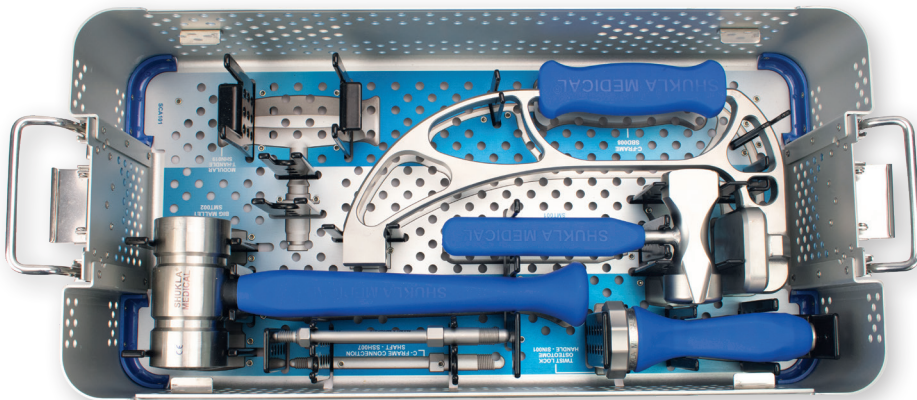
EC	REP	Emergo Europe Prinsessegracht 20 2514 AP The Hague The Netherlands	REF S9KNE	 Shukla Medical 8300 Sheen Drive St. Petersburg, FL 33709 USA	 CONSULT INSTRUCTIONS FOR USE	 NON-STERILE NON-STERILE PRODUCT	
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LIST OF COMPONENTS

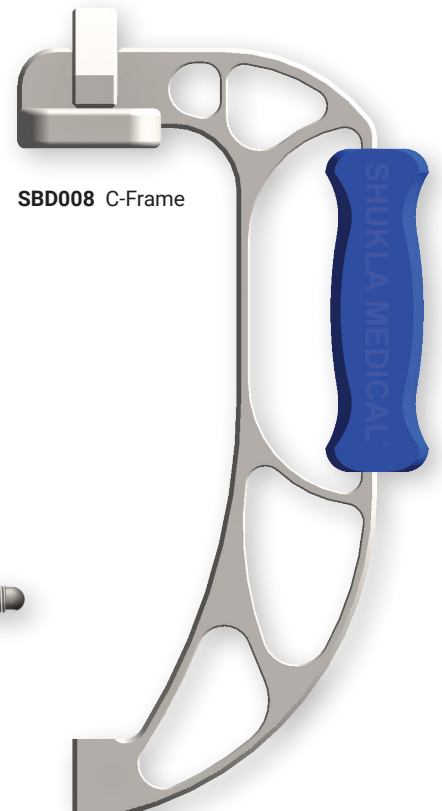
S9KNE Xtract-All® Knee Universal Knee Implant Extraction System					
Part #	Description	Qty	Part #	Description	Qty
SCA101	Case & Tray	1	SIN001	Twist-Lock Osteotome Handle	1
SCS011	Lid	1	SSH007	C-Frame Connection Shaft	2
SXT001	Chiang Tibial Extractor	1	SOS001-05	1/2" Narrow Retrograde Osteotome	2
SXT002	Chiang Femoral Extractor	1	SOS001-06	3/4" Narrow Retrograde Osteotome	1
SMT001	Grooved Mallet	1	SOS001-07	1/2" Wide Retrograde Osteotome	1
SMT002	Big Mallet	1	SOS001-08	3/4" Wide Retrograde Osteotome	1
SBD008	C-Frame	1	SOS001-09	1/2" Z-tip Osteotome	2
SNT001	7/16" Nut	3	SOS001-10	3/4" Z-tip Osteotome	1
SWR002	1/2" & 11/16" Double Open-Ended Wrench	2			

Bottom Level | Instrumentation

Parts not shown to scale



*Modular T-Handle (SHN019) for C-Frame available by special order
S9KNE • Bottom Level



SBD008 C-Frame



SMT002 Big Mallet



SSH007 C-Frame Connection Shaft

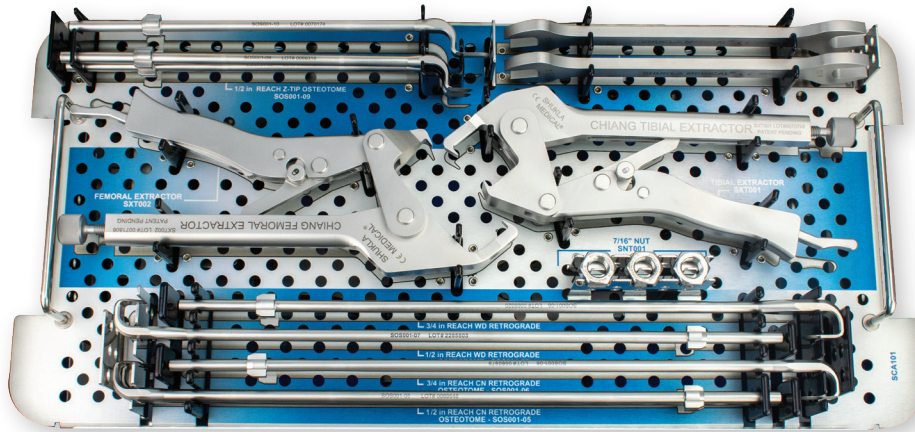


SMT001 Grooved Mallet



SIN001 Twist-Lock Osteotome Handle

Parts not shown to scale



S9KNE • Tray



RETROGRADE OSTEOTOMES

- SOS001-05 1/2" Narrow Retrograde Osteotome
- SOS001-06 3/4" Narrow Retrograde Osteotome
- SOS001-07 1/2" Wide Retrograde Osteotome
- SOS001-08 3/4" Wide Retrograde Osteotome



Z-TIP OSTEOTOMES

- SOS001-09 1/2" Z-Tip Osteotome
- SOS001-10 3/4" Z-Tip Osteotome



SNT001 7/16" Nut



SWR002 1/2" & 11/16" Double Open-Ended Wrench



SXT001 Chiang Tibial Extractor



SXT002 Chiang Femoral Extractor

Retrograde & Z-Tip Osteotomes

SOS001-05 through SOS001-10

Break up bone growth & cement in the prosthesis interface by using osteotomes around all sides of the implant to minimize bone loss during extraction. Retrograde & Z-tip osteotomes in 1/2" & 3/4" sizes easily access the space beneath tibial & femoral components.

- 1 Choose an osteotome configuration that will access the desired area of interface between the implant and bone or bone-cement. (Fig A).

Retrograde osteotomes (Fig A.1) are ideal for accessing the posterior notch of a tibial plate.

Z-tip osteotomes (Fig A.2) are ideal for accessing soft tissue around the femoral component and the posterior-lateral corner of tibial components.



Figure A.1

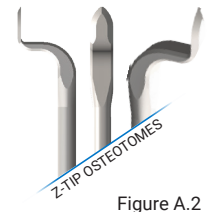


Figure A.2

- 2 Push the osteotome into the Twist-Lock Osteotome Handle (SIN001), twisting the handle collar to lock the blade with an audible click (Fig B).



Figure B

- 3 Use the Grooved Mallet (SMT001) to strike against the handle, breaking up the interface around all sides of the implant (Fig C). Slide the mallet along the length of the osteotome to strike against the handle collar for retrograde force (Fig C), or strike the impact cap for antegrade force (Fig D).

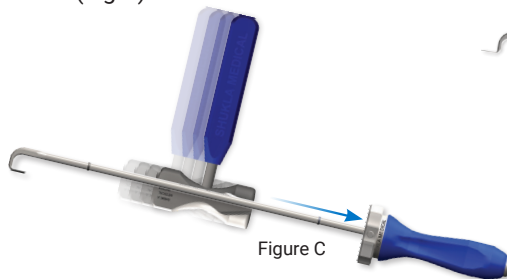


Figure C



Figure D



Figure E.1

Windshield Wiper Method

1. Loosen the interface beneath the posterior notch of the tibial plate using a retrograde osteotome.
2. Move the blade in a side to side pattern, like the blades of a windshield wiper (Fig E).

This applies pressure to the interface with a high mechanical advantage, allowing the curved and pointed tip to penetrate more easily.

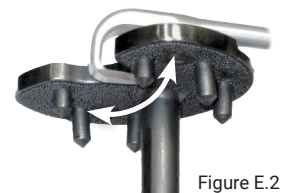


Figure E.2

If the osteotome cannot be advanced beneath the implant without difficulty, use a standard punch to create a groove in the posterior space to anchor the retrograde osteotome blade before advancing into the implant/bone interface with the mallet.

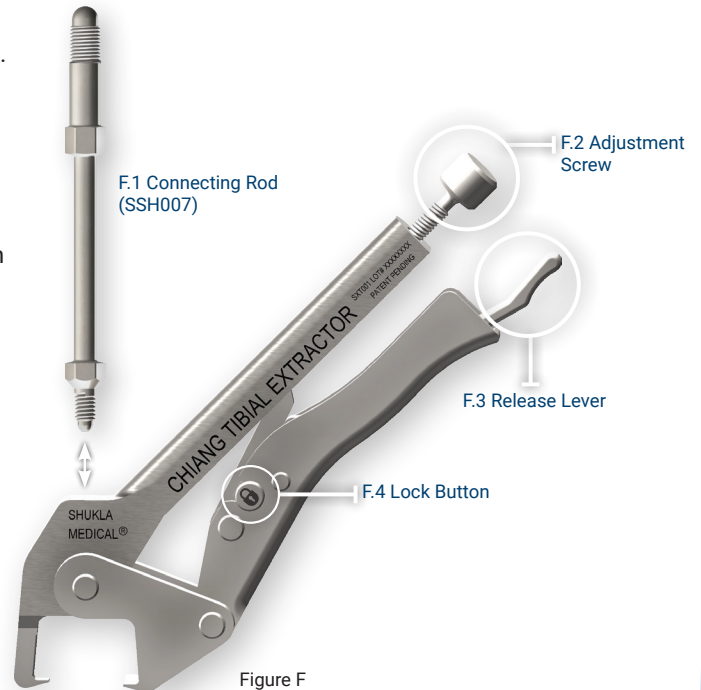
Chiang Tibial & Femoral Extractors

SXT001 & SXT002

Extract the tibial component using the Chiang Tibial Extractor, and the femoral component using the Chiang Femoral Extractor.

1 Screw the Connecting Rod (SSH007) into the Extractor (SXT001 or SXT002) (Fig F.1). Tighten the rod using the 1/2" wrench (SWR002).

- 2**
- Adjust the jaws to fit the implant using the adjustment screw (Fig F.2)
 - Position the jaws around the femoral or tibial component, with the tips beneath the implant.
 - A) Begin with jaws fully expanded, too large to grip down:** position jaws with tips below the implant and tighten the adjustment screw until you feel resistance. Tighten another half turn and clamp down.
 - or
 - B) Begin with jaws too small for the grip to close:** position the jaws with tips below the implant, hold the grip closed, & back out the adjustment screw while applying pressure until the jaw releases enough to clamp down with a click.
 - Lock the jaws onto the implant by pressing the lock button on the side (Fig F.4).



Femoral Component

Position the jaws across the component laterally (Fig G) and adjust to clamp down securely.



Figure G

Tibial Component

Position the jaws so that the narrow tip fits in the posterior notch of the implant, with the wider tip locking beneath the anterior face (Fig H).



Figure H

Tips & Pearls

- Jaws must be fully seated beneath the implant to avoid damage to the tips.
- If bone growth limits the grip of the extractor, use osteotomes to clear room for the jaw tips.
- Check that the connecting rod is aligned with the preferred axis of extraction.
- To reposition or tighten the jaws, first push the unlock button and release the grip with the release lever (Fig F.3). Adjust & re-clamp.

3 Attach the C-Frame (SBD008) to the connecting rod. Secure with a Hex Nut (SNT001) using 1/2" and 11/16" wrenches (SWR002) to tighten.

4 Extract the implant using the Big Mallet (SMT002) to strike the C-Frame strike plate (Fig I). Ensure that the extraction assembly remains in-line with the preferred axis of extraction.

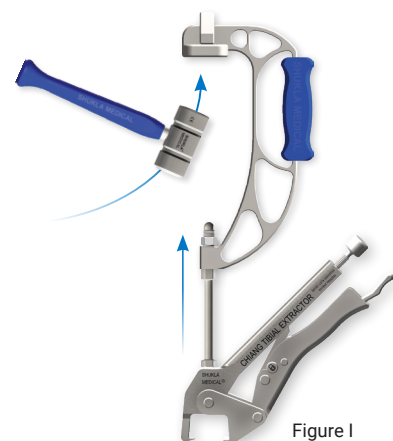


Figure I



Your choice for revision

Shukla Medical designs & manufactures instrumentation for orthopedic implant extraction in St. Petersburg, Florida, USA.

In 1998, aerospace component manufacturer S.S. White Technologies, Inc. acquired the Snap-On Winqvist IM Nail system. S.S. White rebranded the medical division in 2007 to create Shukla Medical.

Today, Shukla Medical is the industry leader in orthopedic implant extraction tools. We are the only company to offer a comprehensive, truly universal orthopedic revision line for removing IM nails, hip and knee implants, spine hardware, and broken or stripped screws. Surgeons and industry leaders know: **If Shukla can't get it out, no one can.**

Contact us to learn more

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