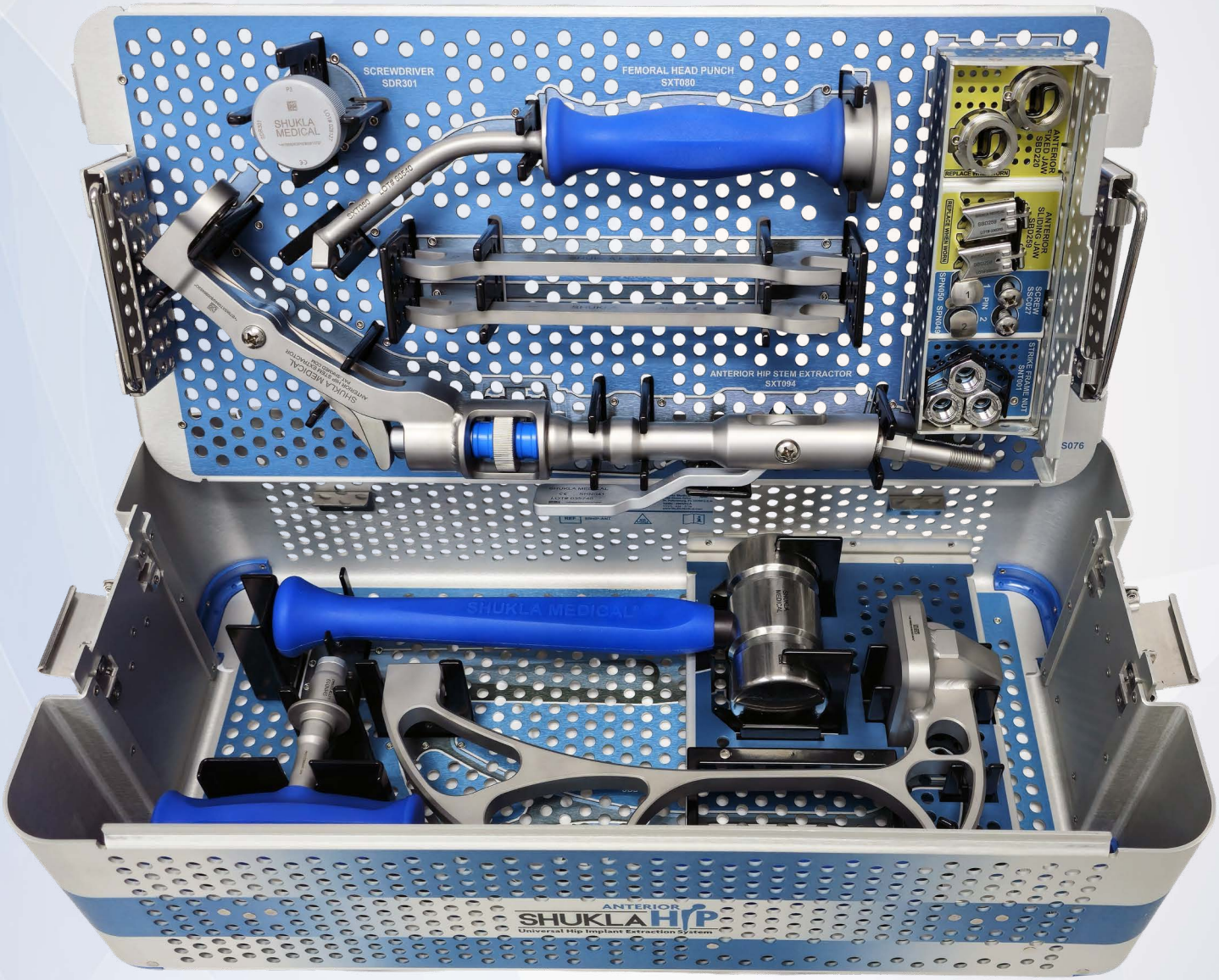
SURGICAL TECHNIQUE GUIDE

#18
Systems 18 of 25

ANTERIOR SHUKLA HIP

Universal Hip Implant Extraction System



SHUKLA MEDICAL®
Universal Orthopedic Extraction Technologies
THE EXTRACTION EXPERTS

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1

ANTERIOR SHUKLA HIP

Universal Hip Implant Extraction System

1.1 System Name: SHUKLA Anterior Hip

Part Number: S9HIP-ANT

Version: 1



1.2 Primary Use

The SHUKLA Anterior Hip Universal Hip Implant Extraction System is designed for the removal of hip stems using the direct anterior approach during revision surgeries. The system consists of a variety of instrumentation geared towards the universal removal of varying designs of hip stems.

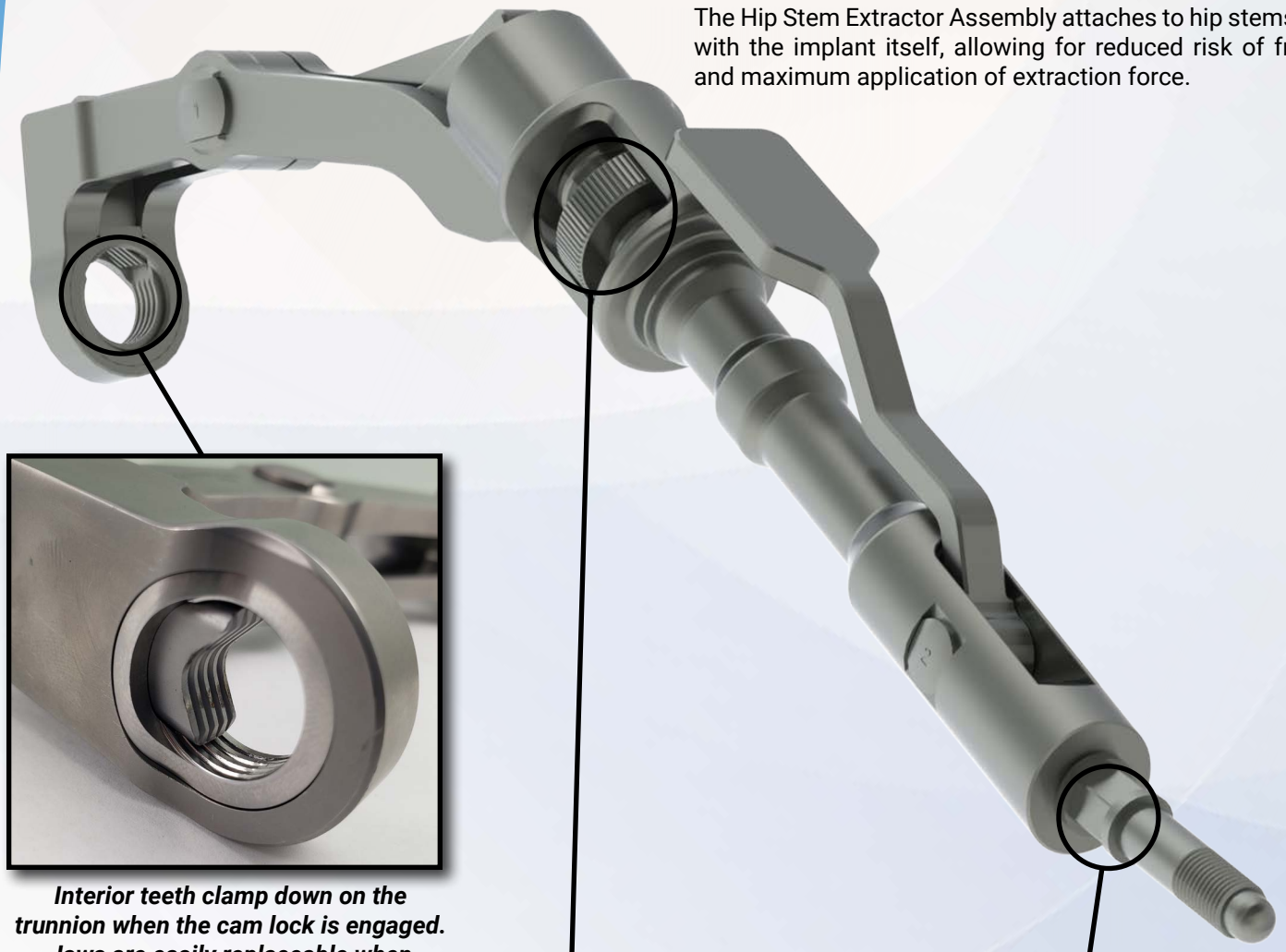
1.3 System History

Development on the inaugural SHUKLA Anterior Hip system began in 2018. We knew that over the past decade, the direct anterior approach to revision hip surgery was rapidly increasing in popularity. Working alongside several orthopedic surgeons, Shukla engineers worked on designing the tools that would allow our system to be universally compatible with all hip stem implants when using the direct anterior approach; a minimally invasive muscle splitting approach, that results in less pain after surgery, smaller incisions, and faster healing for patients.

Building off of the success of the SHUKLA Hip, the SHUKLA Anterior Hip system was released in early 2022.

2.1 ANTERIOR HIP STEM EXTRACTOR

The Hip Stem Extractor Assembly attaches to hip stems inline with the implant itself, allowing for reduced risk of fracture and maximum application of extraction force.



Interior teeth clamp down on the trunnion when the cam lock is engaged. Jaws are easily replaceable when needed.



The Adjustable Knob allows for the quick adjustment of the clamping force onto the implant.



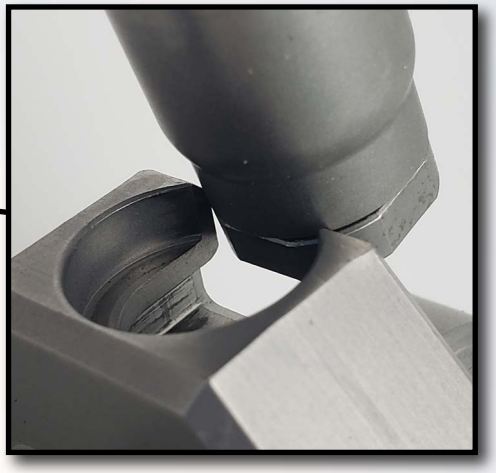
The Strike Plate Frame attachment is angled in-line with the hip stem to prevent risk of fracture to the femur.

Parts not shown to scale



2.2 STRIKE PLATE FRAME

The Strike Plate Frame applies crucial extraction force in-line with the hip stem. Vibrational Harmonics help break up bone ingrowth, making extraction easier and helping reduce the risk of fractures.



Modular T-Handle can be attached in two different orientations.



The wide strike plate allows surgeons to hit with a large degree of accuracy, reducing the chance of mis-hits.



The holes in the body reduce overall weight while improving vibrational harmonics.

3.1 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.

3.2 Operative

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

3.3 Storage

- It is recommended to store all Shukla Medical instrumentation in a clean, dry environment. Under 50% relative humidity; ≤75ºF/24ºC.
- 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.

3.4 Intended Use

The SHUKLA Anterior Hip (S9HIP-ANT) Universal Hip Implant Extraction System is designed for the removal of femoral hip components, especially hip stems, during revision procedures.

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.

3.5 Indications for Use

The SHUKLA Anterior Hip (S9HIP-ANT) Universal Hip Implant Extraction Solution is indicated for use during any revision procedure in which femoral hip components must be extracted and the anterior approach is employed.

3.6 Contraindications

The SHUKLA Anterior Hip System includes multiple attachment methods specific to a variety of hip stem implant styles. All attachment configurations ultimately connect to the Strike Plate Frame and require repeated strikes with a mallet to extract the implant. Therefore, when there is insufficient quality or quantity of bone, or any other condition that may result in fracture of the femur during extraction, the provided instrumentation should not be used.

Listed below are possible (not inclusive) scenarios in which the SHUKLA Hip System should not be used:

- **Fully porous-coated straight and bowed stems:** Due to the excessive bone ingrowth on fully porous-coated straight and bowed stems, it is not recommended to use this system for removal of such implants.
- **Foreign body sensitivity:** Where material sensitivity is suspected, appropriate tests should be performed to rule out sensitivity prior to use.

3.7 Additional Recommendations

For complete revision solutions, it is also recommended to use the SHUKLA Anterior Hip system in conjunction with the SHUKLA Screw (S9SCREW) Universal Broken & Stripped Screw Extraction System, the SHUKLA Maxi (S9MAXI) Universal Large Bone Screw Extraction System, and the SHUKLA Blade (S9BLADE) Universal Flexible Osteotomes System.

STEP 1 Determine Stem Type

For the best possible surgical outcome of the SHUKLA Universal Anterior Hip Stem Extraction System (S9HIP-ANT), it is necessary to preoperatively determine if the Anterior Hip system can be used for this procedure.

- If the implant is to be extracted posteriorly, consult the Surgical Technique Guide for the SHUKLA Hip (S9HIP) System.
- If the implant is a modular hip implant, consult the Surgical Technique Guide for the SHUKLA Mod Hip (S9HIP-MOD) System.
- If the implant has a monoblock stem, use the Monoblock Extractor (104-07) from the SHUKLA Hip (S9HIP) System.
- If the implant is to be extracted anteriorly, proceed to **Step 2**.



Modular Stem | Monoblock Stem | Tapered Stem

STEP 2 Femoral Head Removal

1. Position the Femoral Head Punch (SXT080) against the femoral head of the implant (Image 1).
2. Slide the instrument onto the hip implant neck, with the femoral head inside the nested sleeves.
3. Use the Mallet (SMT005) to strike the impact cap of the Femoral Head Punch to dislodge the Femoral Head from the implant. Proceed to **Step 3**.

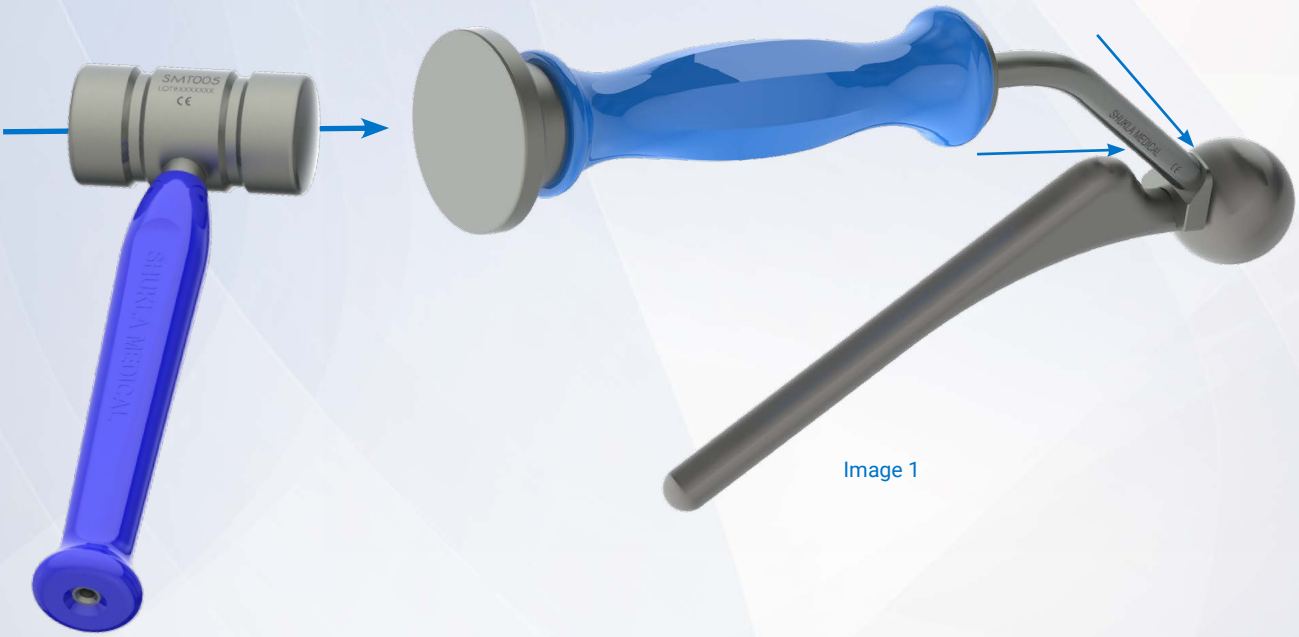


Image 1

STEP 3

Break up bone interface around the femoral hip stem using the SHUKLA Blade (S9BLADE) Universal Flexible Osteotomes. Once the hip stem has been cleared, proceed to **Step 4**.

Note: For detailed instructions on types of osteotomes and how to use them, please consult the Surgical Technique Guide for the SHUKLA Blade (S9BLADE) Universal Flexible Osteotomes System.



STEP 4

Take the Anterior Hip Stem Extractor (SXT094) and open the cam handle fully. Then rotate the adjustment knob (Image 1) clockwise to fully open the extractor jaw (Image 2).

Note: Adjustment directions of clockwise (**Step 4**) and counterclockwise (**Step 6**) are given with the assumption that the posterior end of the Anterior Hip Stem Extractor is facing left. If facing right, please swap the adjustment direction.

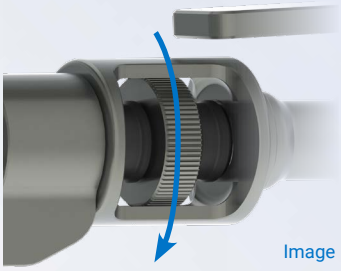


Image 1

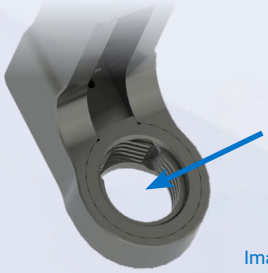


Image 2

STEP 5

Using your index finger push the rocker lever back towards the distal end of the extractor (Image 3). This will slide the moveable jaw to the open position.

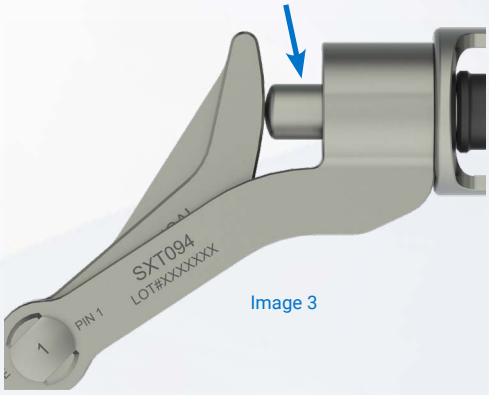
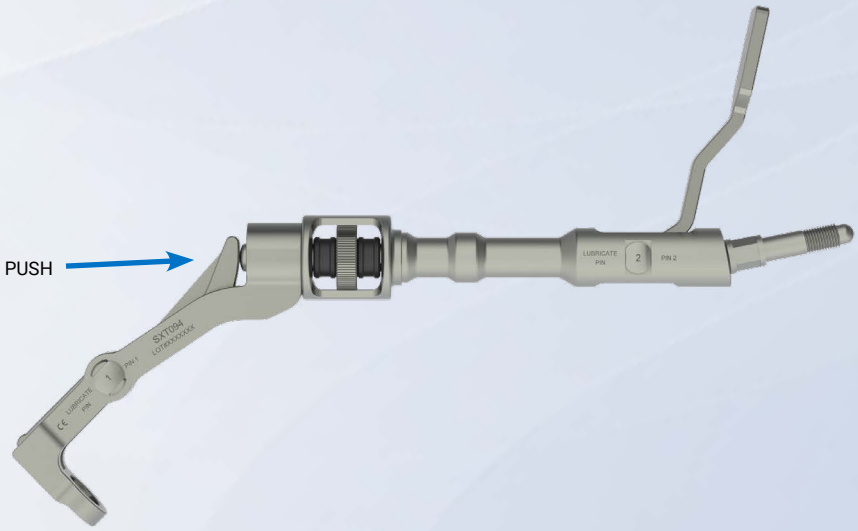


Image 3



STEP 5

Position and slide the opened jaw over the trunnion of the femoral hip stem (Image 4).

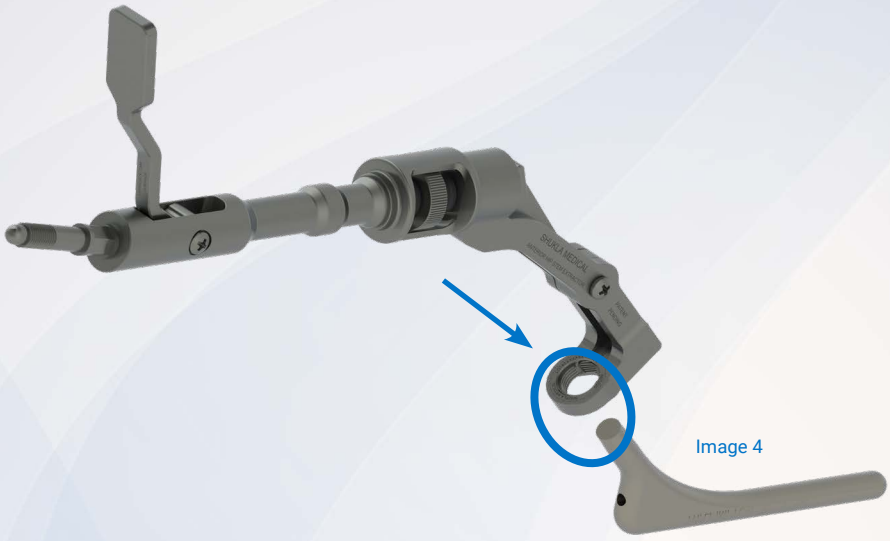


Image 4

Note: For headed trunnions - Place the extractor jaws under the lip of the trunnion.



Note: For non-headed trunnions - Clamp the extractor jaws directly to the head of the trunnion.



STEP 6

Tighten the adjustment knob on the extractor handle by turning knob counter clockwise (Image 5). Continue adjusting until the jaw has firmly gripped the trunnion.

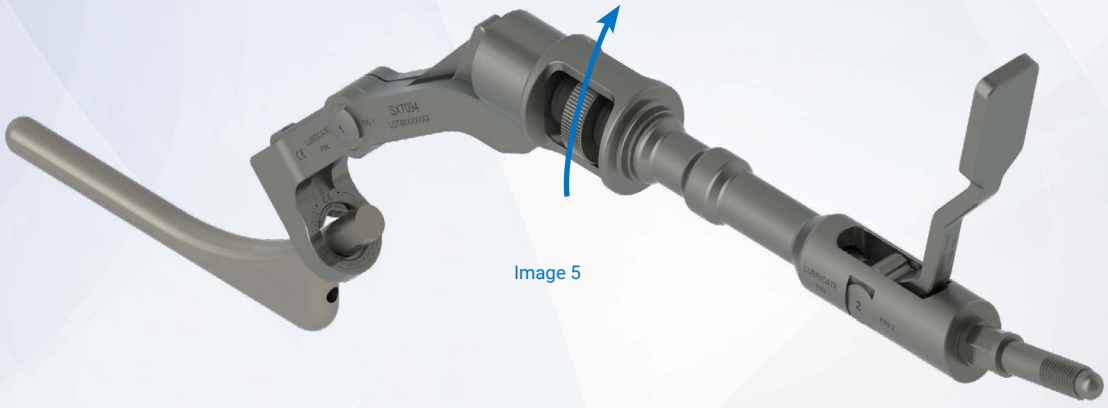


Image 5

STEP 6

Close the cam handle by pushing it down towards the extractor frame (Image 6). This will lock down the jaw onto the trunnion, securing the implant for extraction.

Note: Handle must close fully to ensure a secure grip on the implant neck. Confirm secure attachment by pulling slightly - it should stay in place. If handle cannot go down fully, loosen the adjustment knob and try again.

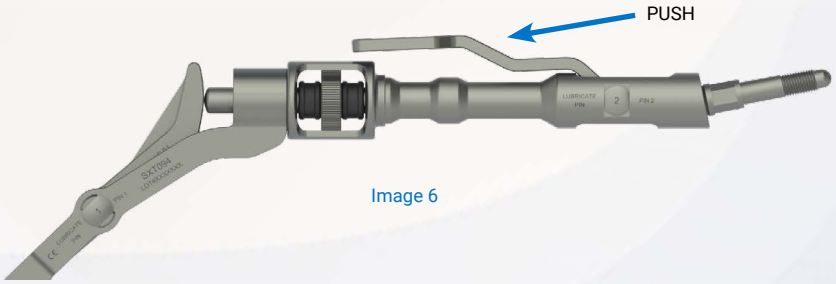


Image 6

STEP 7

With extractor aligned and securely locked onto hip stem, slide the Strike Plate Frame (SBD008) and a Hex Nut (SNT001) onto the proximal end. Tighten nut fully with the 2 11/16" Wrenches (SWR002) (Image 7).

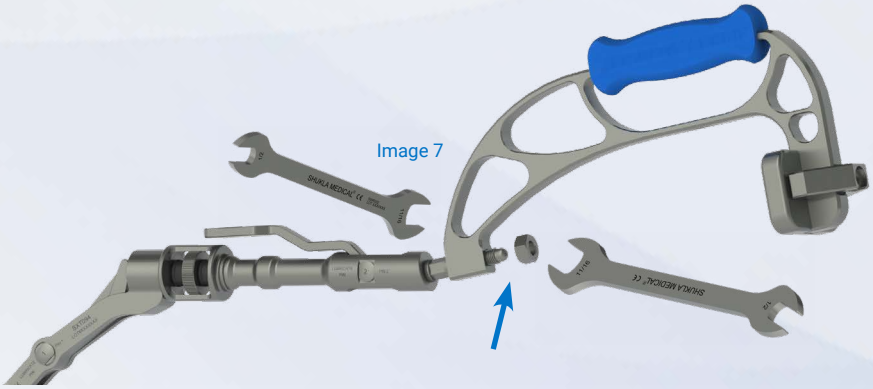


Image 7

STEP 8

Extract implant by striking with the Mallet (SMT005) onto the extraction Strike Plate Frame (Image 8). If implant resists removal after several strikes, loosen bone around implant prior to continuing.

Tip: If additional grip is needed, attach the Modular T-Handle (SHN019) to the Strike Plate Frame.

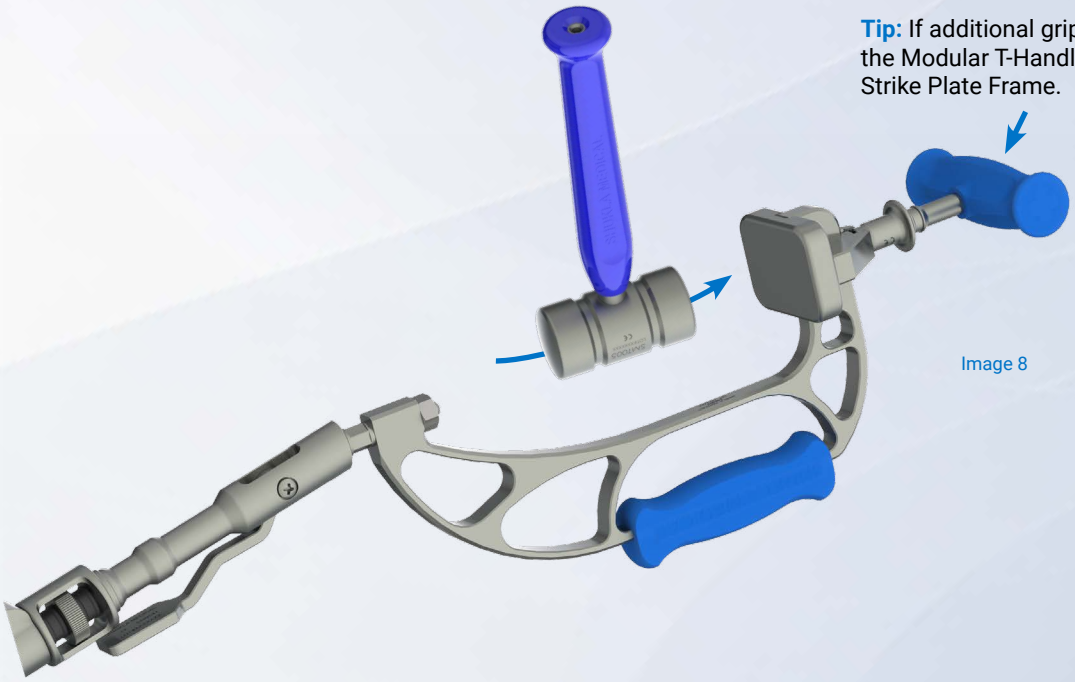


Image 8

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. 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.

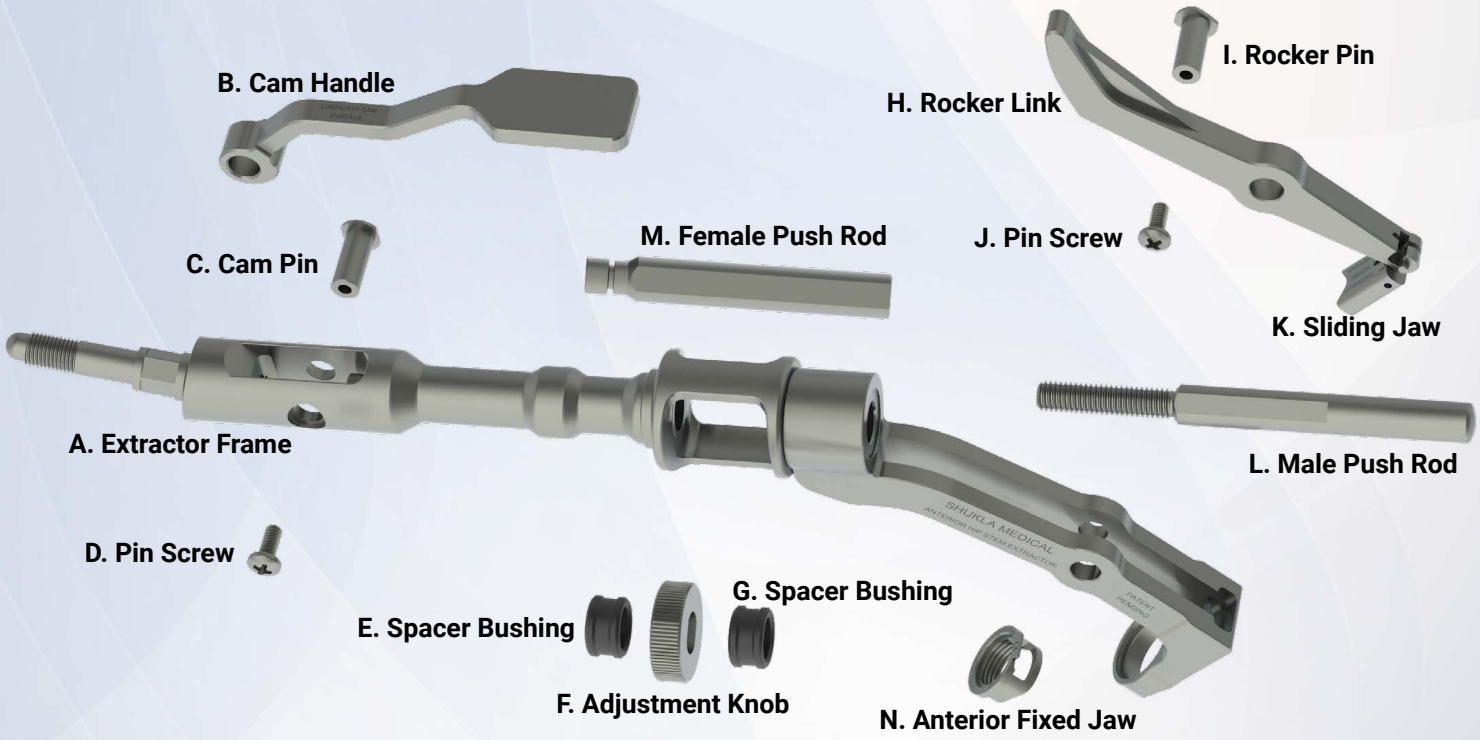
For detailed cleaning and sterilization instructions, please visit www.ShuklaMedical.com/Sterilization

Disassembly Instructions: Anterior Hip Stem Extractor

SHUKLA Universal Anterior Hip Stem Extractor Assembly (SXT094) must be disassembled completely for cleaning. All contamination must be removed at this stage. The extractor must be reassembled prior to sterilization.

Disassembled extractor should result in a total of fourteen (14) pieces:

A. Extractor Frame (SXT094)
B. Cam Handle (SHN041)
C. Cam Pin (SPN049)
D. Pin Screw (Cam Pin) (SSC027)
E. Spacer Bushing 1 (SBS010)
F. Adjustment Knob (SBD097)
G. Spacer Bushing 2 (SBS010)
H. Rocker Link (SBD103)
I. Rocker Pin (SPN050)
J. Pin Screw (Rocker Pin) (SSC027)
K. Sliding Jaw (SBD259)
L. Male Push Rod (SBD101)
M. Female Push Rod (SBD258)
N. Anterior Fixed Jaw (SBD220)



Disassembly Instructions: Anterior Hip Stem Extractor

ONLY STEPS 1 - 3 NEED TO BE PERFORMED DURING NORMAL CLEANING AND FOR JAW REPLACEMENT.

STEPS 4 - 6 ARE RESERVED FOR WHEN A FULL DISASSEMBLY CLEANING IS NEEDED.

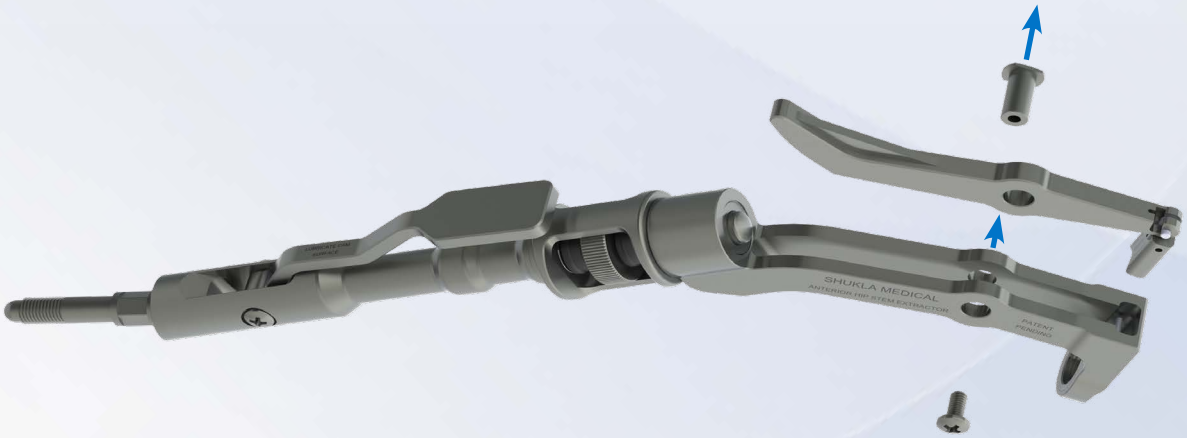
STEP 1

Unscrew the Pin Screw (SSC027) from the Rocker Pin (SPN050).



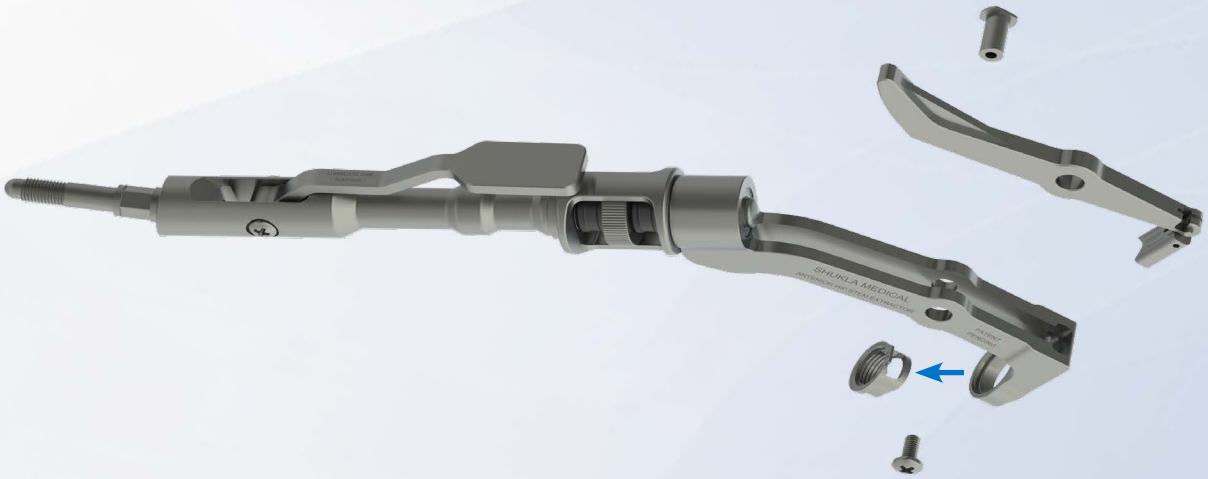
STEP 2

Remove the Rocker Pin from the Rocker Link (SBD103). This will free the Rocker Link and the Sliding Jaw (SBD259) from the Extractor Frame (SXT094).



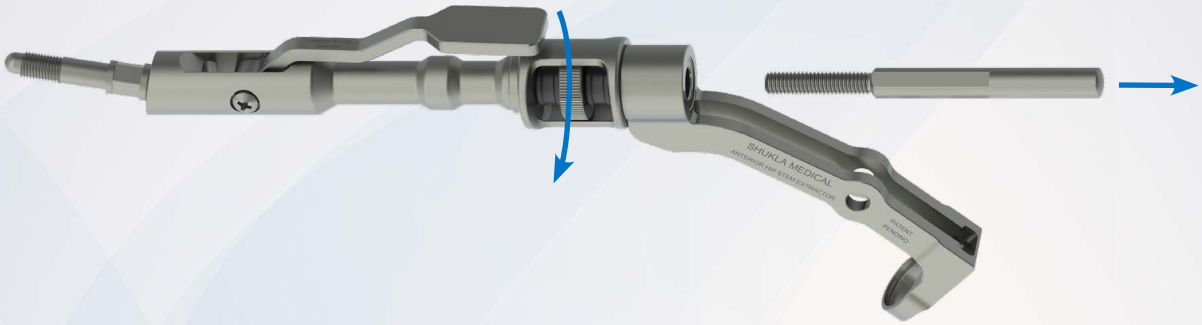
STEP 3

Remove the Anterior Fixed Jaw (SBD220) from the Extractor Frame.



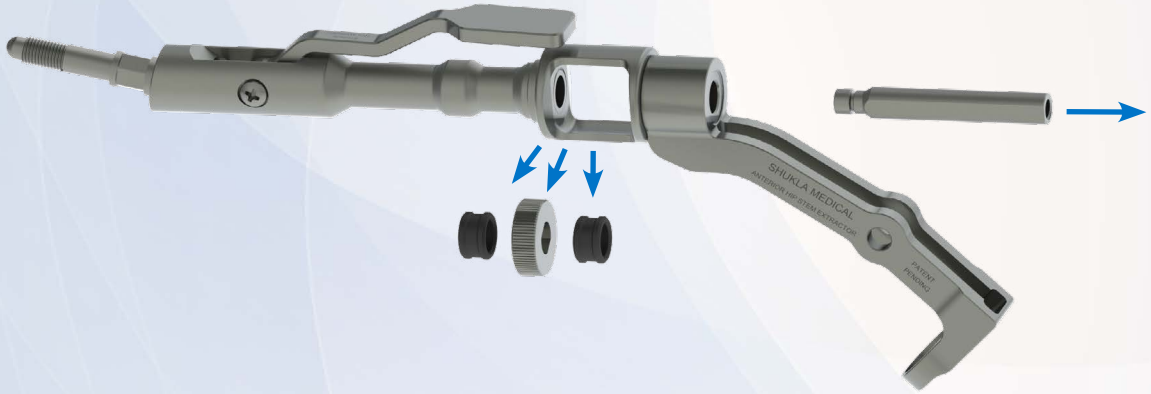
STEP 4

Rotate the Adjustment Knob (SBD097) to unscrew the Male Push Rod (SBD101) from the Extractor Frame.



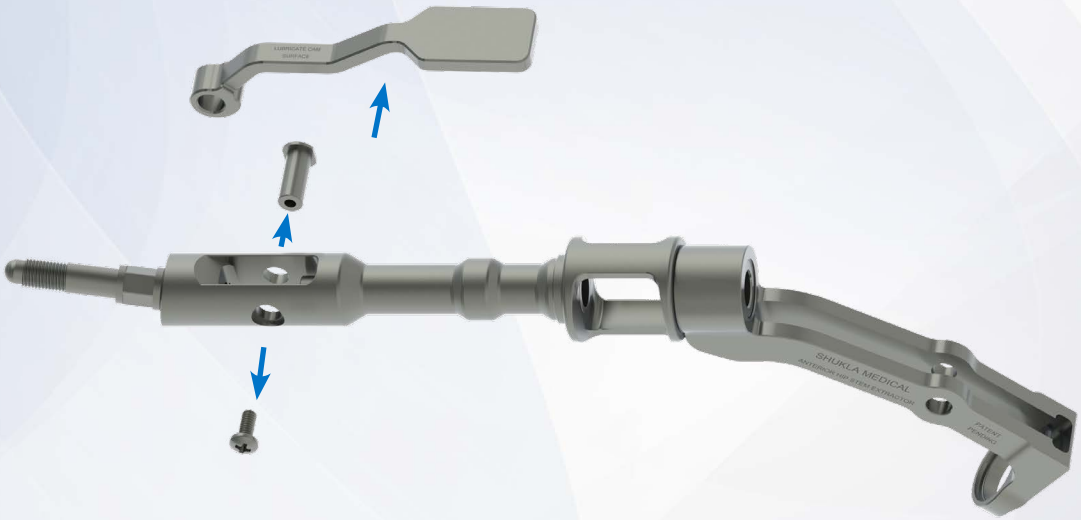
STEP 5

Remove the Spacer Bushings (SBS010). Rotate the Adjustment Knob 90 degrees to remove it from the Adjustment Knob housing. Remove the internal Female Push Rod (SBD258) by tipping the Extractor Frame downward.



STEP 6

Unscrew the Pin Screw (SSC027) from the Cam Pin (SPN049). Remove the Cam Pin and then remove the Cam Handle (SHN041).



Reassembly Instructions: Anterior Hip Stem Extractor

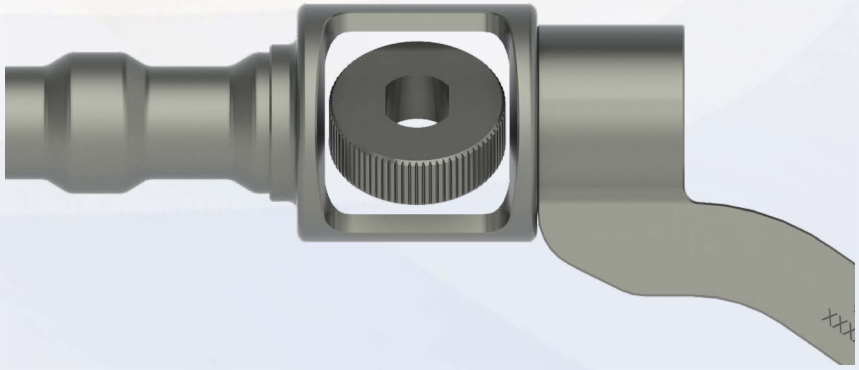
IF A FULL DISASSEMBLY WAS NOT PERFORMED, ONLY STEPS 4 - 6 NEED TO BE DONE

STEP 1

Replace the Cam Handle (SHN041) and secure with the Cam Pin (SPN049). Screw the Pin Screw (SSC027) into the Cam Pin and tighten.

STEP 2

Reinsert the Female Push Rod (SBD258) into the Extractor Frame (SXT094). Turn the Adjustment Knob (SBD097) 90 degrees to get it back into the Adjustment Knob housing before turning it back upright. Reinsert the Spacer Bushings (SBS010) on either side of the Adjustment Knob.



STEP 3

Insert the Male Push Rod (SBD101) into the Extractor Frame. Align the Push Rod through the Spacer Bushings and Adjustment Knob and rotate it to thread it back into the Female Push Rod.

STEP 4

Replace the Anterior Fixed Jaw (SBD220) into the Extractor Frame.

Note: If the Anterior Fixed Jaw needs to be replaced, do so at this step by inserting a fresh jaw into the Extractor Frame.

STEP 5

Replace the Rocker Link (SBD103) and the Sliding Jaw (SBD259) back into the Extractor Frame. Insert the Rocker Pin to lock the Rocker Link into place.

Note: If the Sliding Jaw needs to be replaced, do so at this step by inserting a fresh jaw into the Rocker Link as shown.



STEP 6

Screw the Pin Screw (SSC027) into the Rocker Pin and tighten.

6 TIPS and TRICKS

- Both the Anterior Fixed Jaw and the Sliding Jaw are replaceable for whenever the need may arise. This can be done in the O.R. if needed.
- The Strike Plate Frame Modular T-Handle can be oriented in two different positions based on either surgeon preference or surgical necessity.
- The Phillips screwdriver (SDR301) can be used to remove both Pin Screws from the Extractor during disassembly.
- If the Anterior Hip Stem Extractor can rotate around the implant after clamping down onto the trunnion, it needs to be tightened.

7 COMPONENTS LIST

Component List		
Std Qty	**Part Number**	**Description**
1	SCS075	Case, Tray, S9HIP-ANT
1	SCS076	Case, Bottom, S9HIP-ANT
1	SCS076-01	Caddy, Spare Parts
1	SCS011	Lid, Hip, Knee, Broken & Stripped, Blade, Systems
1	SXT094	Extractor, Hip Stem, Anterior Assy
2	SBD220	Jaw, Anterior, Fixed
2	SBD259	Jaw, Anterior, Sliding
1	SXT080	Punch, Femoral Head
1	SBD008	Strike Plate, Assy, Frame
3	SNT001	Nut, Hex, 7/16-20 UNF-2B
1	SHN019	T-Handle, Assy, for Strike Plate
2	SWR002	Wrench, Double Open End, 1/2” & 11/16”
1	SMT005	Mallet, Assy, Big
1	SDR301	Driver, Phillips, #3, Stubby

THE EXTRACTION EXPERTS

Shukla Medical designs and manufactures instrumentation for orthopedic implant extraction at our headquarters in St. Petersburg, Florida, USA. We are proud to be an *ISO 13485:2016* Certified company.

In 1998, aerospace component manufacturer S.S. White Technologies, Inc. acquired the Medical Products Division of Snap-On. 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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ISO 13485:2016

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CONSULT INSTRUCTIONS FOR USE

NON STERILE NON-STERILE PRODUCT

SHUKLA Surgical Tech Support

24 hours a day, 7 days a week
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When you have tried all known techniques to extract an implant or remove a screw but determine you need suggestions for alternate techniques, help is only a phone call away. We will quickly put you in touch with our Technical Experts who will suggest other solutions to use our tools.

WARRANTY

SHUKLA Medical offers the best warranty in the industry. Every component in a SHUKLA extraction system is designed and manufactured by us. Every component in our extraction systems that is not a single-use* or a wear* component is warranted against manufacturing defects for the life* of the system. All other parts are covered for as long as the purchased version of the system is actively marketed by SHUKLA Medical.

*Please see our website for the complete explanation of these terms and full details on our warranty.

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L3-HIP-ANT-STG-REVISED