

# PRODUCT GUIDE

# #8

System 8 of 15

# SHUKLA NAIL

Universal IM Nail Extraction Solution



## SHUKLA MEDICAL®

Universal Orthopedic Extraction Technologies

*Revolutionizing the Art of Revision Surgery*

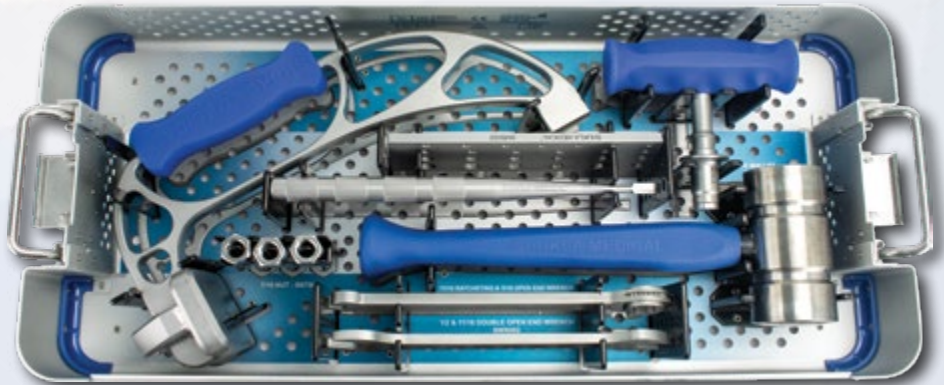
# SHUKLA NAIL

## Universal IM Nail Extraction Solution

**System Name: SHUKLA Nail v4**

### Primary Use

The SHUKLA Nail Universal IM Nail Removal System is designed to remove any IM Nail on the market today. Every part of this system is designed with surgeon efficiency in mind and to give surgeons every tool they need to get out any IM nail implant safely and quickly.



### System History

The SHUKLA Nail system, formally known as the Winquist, was named after Dr. Robert Winquist, who had an idea to create a truly universal IM nail extraction system. He worked tirelessly encouraging large orthopedic companies to work together to share their information about their own IM nail products with a non-competitive entity. The original system was designed under the Medical Products Division of Snap-On Medical (later acquired by SHUKLA Medical) in the year 1996.

In 2005, the product development manager at Shukla Medical took on the challenge of a major expansion and the upgrade of the winquist system. We got input from some of the top surgeons and incorporated all their suggestions. One of the biggest changes was the shift from a single case to two cases - one for extractors and one for instrumentation.

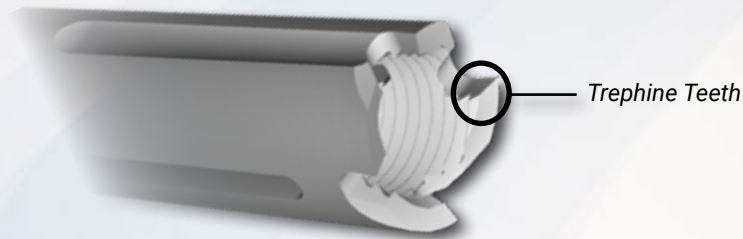
Five years later, the Winquist III was released. In this version, all extractors were changed to single use disposable items to ensure the maximum effectiveness when used on an implant. We also added new solid nail extractors, along with a variety of new extractor types and sizes.

In 2019, we were ready with another update. The Winquist IV, now renamed the Shukla NAIL, debuted in 2019 thanks to sales force and surgeon field feedback. The v4 added several more extractors, drivers, and tips, making it the most complete nail extraction system in the world.

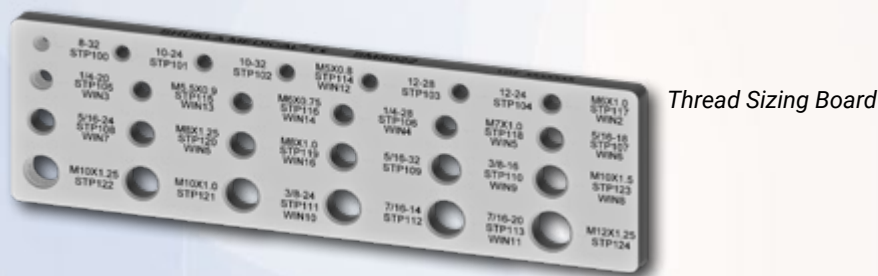
<p><b>1996: Version 1 Introduced</b></p>	<p><b>2010: Version 3 Introduced</b></p> <ul style="list-style-type: none"> <li>• Disposable Tips</li> <li>• Solid IM Nail Extractors</li> <li>• More Tips and Extractors</li> <li>• Upgraded Strike Plate Frame</li> </ul>	<p><b>2019: Version 4 Introduced</b></p> <ul style="list-style-type: none"> <li>• Bone Clearing Flutes</li> <li>• Thread Sizing Board</li> <li>• Threaded Tip Configurations</li> <li>• More Tips and Extractors</li> <li>• Offset Hook Extractors</li> <li>• Detachable T-Handle</li> </ul>
<p><b>2005: Version 2 Introduced</b></p> <ul style="list-style-type: none"> <li>• Separate Instrumentation Case</li> <li>• More Tips and Extractors</li> </ul>		

## Key Benefits

- Ability to remove a universal range of IM nails, no matter the manufacturer, country of origin, or how long ago the primary surgery took place.
- Backups to your backups to your backups. Don't close up a patient unsuccessfully again - the SHUKLA Nail provides not one, not two, not three, but *four* different methods to extract an IM nail.
- Trepine Teeth on the extractors engage with IM nails quickly and aggressively, ensuring a solid "bite" for extraction.



- Ability to quickly and easily find the proper extractor size and type needed for each nail. Three different methods are available; visual assessment based on the IM nail, the Thread Sizing Chart on the system lid, and our Thread Sizing Board.



- Extractors are designed with bone-clearing flutes carve out any bone or tissue from inside the IM nail threads.



- Strike Plate Frame applies crucial extraction force in-line with the IM nail. Additionally, the Strike Plate is designed to generate Vibrational Harmonics which further help break up bone ingrowth, making extraction easier and reducing the risk of fractures.

### Universal Shukla System Benefits for Better Patient Outcomes

#### Less Time Spent in O.R.

- Reduces risk of infection to patient
- Reduces time spent under anesthesia
- Reduces cost to the hospital

#### Universal Designs

- Less prep time for surgeons
- Less space taken up in the O.R.
- Reduces need for other systems or tools

#### Ergonomic Design

- Reduces surgeon stress
- Reduces surgeon fatigue
- Better grip/reduces slippage

#### Comprehensive Design

- Addresses all known challenges
- Tools ensure surgery is a success
- Provides backup solutions during surgery

## Alternative Method Comparison

The main alternative method to extract an IM nail without a SHUKLA Nail set is to get in touch with a rep for the original manufacturer of the nail and obtain the instruments from them. This can work if you know exactly what kind of nail you are taking out beforehand. But a lot of times surgeons either don't know, or when they open up the patient, they find out that it's not what they thought it would be. This leads to wasted time waiting on other reps to show up or an unsuccessful closing of the case.

Another alternative would be performing a small osteotomy on the distal end of where the IM nail is, and using a punch to force the nail out. But why waste all of that time, effort, and patient bone, when you can use a SHUKLA Nail v4 set and take the nail out in minutes?



*A window is cut in the bone on the end of the IM nail to allow a hammer and a punch to tap the IM nail out the opposite direction in which it was implanted.*

## Return On Investment Justification

According to a study published in JAMA Surgery, the cost of one minute in an O.R. can vary anywhere from \$36 per minute to \$100 per minute, with the average cost of a minute in the O.R. at a staggering \$66! Taking just the lowest estimate of time savings, the savings per surgery can be estimated at 60 to 90 minutes. At 75 minutes per surgery, the savings would be  $75 \times \$36$  per minute = \$2,700. The SHUKLA Nail v4 sells for \$29,500, meaning that even at the lowest cost per minute in the O.R. it would only take 11 uses for it to pay for itself.

## When You Don't Have It

Not having a SHUKLA Nail system on hand to extract IM Nails puts an O.R. at several disadvantages. Why try to remove a 30 year old IM Nail with a slap hammer, spending hours cycling between multiple people as their arms get tired? With Shukla, surgeons can wield a two-handed mallet and use the Strike Plate Frame with the power of vibrational harmonics to remove that same IM Nail in a fraction of the time. The benefits from a decrease in surgeon fatigue and reduction in time patients spend under anesthesia shouldn't be underestimated.

With our universal IM nail removal system it literally doesn't matter if surgeons are opening up a patient with no prior information at all (great for emergency trauma cases), because we give them four ways to take out ANY nail from ANY manufacturer.

## PATENTS

- Strike Plate Frame Modular T-Handle
- Strike Plate Frame
- Ratcheting T-Handle
- Quick-Connect Extractor T-Handle
- Conical Extractor
- Threaded Extractor
- Solid IM Nail Extractor

The SHUKLA Nail v4 system is bursting with patented instruments that our engineering team has worked incredibly hard on.

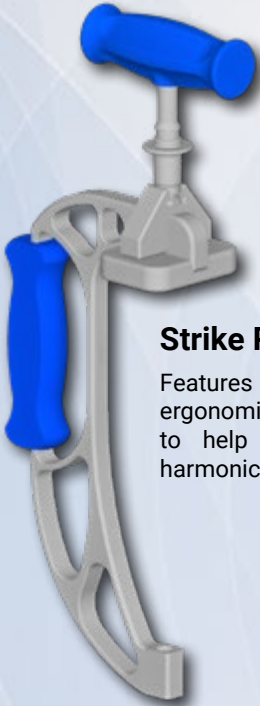


### Modular T-Handle

T-Handle can be quick-attached in two different orientations based on surgeon preference. It can also be removed from the Strike Plate Frame if needed.

### Threaded Extractors

Twenty five different sizes of threaded extractors with bone clearing flutes and three types of Female threaded extractors are provided in the system.



### Strike Plate Frame

Features an integrated connection adaptor and ergonomic handle. The body has been reinforced to help withstand the immense vibrational harmonics that occur with every strike.

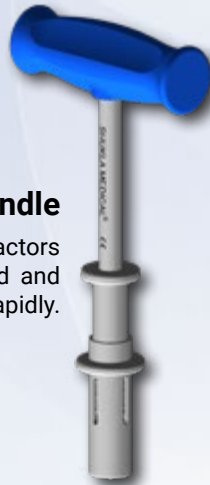


### Conical Extractors

Tapered extractors that cut into and grab onto an IM nail to create threads to secure the nail for extraction. Three different sizes are available to fit a wide range of nails.

### Extractor T-Handle

Quick-connects to any of our extractors and allows them to be connected and disconnected rapidly.



### Solid IM Nail Extractors

Internally threaded extractors that can cut threads into the outside of an IM nail and secure it for extraction. The trephine teeth help clear away bone to provide engagement. Five different sizes are available.

### Ratcheting T-Handle

Can ratchet forward, reverse, and lock in the middle. It has a release button for quick disengagement. The asymmetric T-shape allows exertion of increased torque while remaining ergonomic to reduce fatigue.



## How We Compare

Most orthopaedic implant manufacturers provide revision/extraction tools suited *only* for their own implants. Even suppliers that claim to offer extraction sets basically have an assortment of tools thrown together as an afterthought. For Shukla Medical, **extraction is what we do**. Our engineers design truly universal tools to help remove any implant/hardware out there, making our competition essentially nonexistent. Our patented designs are revolutionizing the art of revision surgery; we proudly stand alone. We have still tried to provide a comparison to other systems on the market.

No other IM Nail extraction set comes close to the SHUKLA Nail. With SHUKLA Nail in the O.R, you can be sure to extract *any* IM Nail - no matter the manufacturer, no matter how old the nail. The SHUKLA Nail includes four methods to extract an IM Nail accounting for many different scenarios a surgeon could encounter.

Nail extraction requires high extraction force. While a slap-hammer may exert a strike force of only around 1,500 lbs, our strike plate frame and mallet combination exerts a strike force up to 3,000 lbs. Unlike a slap-hammer, the strike plate frame provides vibrational frequency transmitted to the nail that helps disrupt the implant-bone interface. This leads to faster IM Nail extraction with less fatigue experienced by the surgeon.

## Attention to Detail

The SHUKLA Nail is designed with multiple extraction options available depending on the geometry of the implant to be extracted. For instance, when removing an IM Nail, if the Nail has a nail cap, use our sizing board, insert the correct threaded tip, attach the strike plate frame, and extract that nail with prejudice.

But what if a compatible tip cannot be identified, or the internal threads in the nail are damaged? Then go to Plan B, our Conical Extractor, which will create its own threading.



What if the end of the IM nail is solid and there's no place for the conical tip to go in? Use Plan C, our Solid IM Nail Extractor, which will envelop the nail and create threads on the outside diameter of the nail using its internal threading. It will also clear out bone or tissue using its trephine teeth.

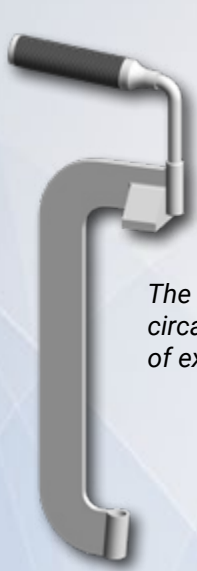


What if none of the other three options above work? Find a slot in the nail or create one with a drill if one is not present. Then place our hook extractor in the slot, connect the hook extractor to the strike plate and remove the nail.



# History of the C-Frame/Strike Plate Frame

It all began with the original Winquist system, and has since expanded beyond IM nails to our Hip and Knee systems. Our C-Frame (now known as our Strike Plate Frame), has evolved as we have.



*The original C-Frame, circa 1996. The Model T of extraction.*



*The evolution of the C-Frame, complete with ergonomic handle, larger strike plate, and better engineering all around.*



*The current day pinnacle of extraction design. The Strike Plate Frame formerly known as C-Frame. Modular ergonomic T-Handle, comfortable hand grip and knuckle guard, and exceptional vibrational harmonics set it apart.*

## Components List

Component List		
Std Qty	Part Number	Description
1	SBD008	Strike Plate, Assy, Frame
1	SCS027	Case, Instruments, IM Nail removal System
1	SCS028	Lid, Instruments, IM Nail removal System
1	SHN019	T-Handle, Assy, for Strike Plate Frame
1	SMS022	Gauge, Thread Identifier
1	SMT002	Mallet Assy, Big
3	SNT001	Nut, Hex, 7/16-20 UNF-2B
1	SOS027	Chisel, Bone
2	SWR002	Wrench, Double Open End, 1/2" & 11/16"
1	SWR007	Wrench, Assy Ratcheting 11/16" & Open End 5/16"
1	SCS024	Case, Components, IM Nail removal System
1	SCS025	Tray, IM Nail removal System
1	SCS026	Lid, Components, IM Nail removal System
1	SDR013	Driver, Hex, Male, 2 mm
1	SDR014	Driver, Hex, Male, 2.5 mm
1	SDR015	Driver, Hex, Male, 6 mm
1	SDR016	Driver, Hex, Female, 6 mm
1	SDR017	Driver, Hex, Male, 8 mm
1	SHN022	T-Handle Assy, Ratcheting, Hex, 1/4"
1	SHN023	T-Handle Assy, Quick Connect, Hex, 1/2"
3	STP100	Tip, Male, 8-32 UNC-2A, <i>Single Use</i>
3	STP101	Tip, Male, 10-24 UNC-2A, <i>Single Use</i>
3	STP102	Tip, Male, 10-32 UNF-2A, <i>Single Use</i>
3	STP103	Tip, Male, 12-28 UNF-2A, <i>Single Use</i>
3	STP104	Tip, Male, 12-24 UNC-2A, <i>Single Use</i>
3	STP105	Tip, Male, 1/4-20 UNC-2A, <i>Single Use</i>
3	STP106	Tip, Male, 1/4-28 UNF-2A, <i>Single Use</i>
3	STP107	Tip, Male, 5/16-18 UNC-2A, <i>Single Use</i>
3	STP108	Tip, Male, 5/16-24 UNF-2A, <i>Single Use</i>
3	STP109	Tip, Male, 5/16-32 UNEF-2A, <i>Single Use</i>
3	STP110	Tip, Male, 3/8-16 UNC-2A, <i>Single Use</i>

CASE #1

CASE #2

Component List		
Std Qty	Part Number	Description
3	STP111	Tip, Male, 3/8-24 UNF-2A, <i>Single Use</i>
3	STP112	Tip, Male, 7/16-14 UNC-2A, <i>Single Use</i>
3	STP113	Tip, Male, 7/16-20 UNF-2A, <i>Single Use</i>
3	STP114	Tip, Male, M5 X 0.8 - 6g, <i>Single Use</i>
3	STP115	Tip, Male, M5.5 X 0.9 - 6g, <i>Single Use</i>
3	STP116	Tip, Male, M6 X 0.75 - 6g, <i>Single Use</i>
3	STP117	Tip, Male, M6 X 1.0 - 6g, <i>Single Use</i>
3	STP118	Tip, Male, M7 X 1.0 - 6g, <i>Single Use</i>
3	STP119	Tip, Male, M8 X 1.0 - 6g, <i>Single Use</i>
3	STP120	Tip, Male, M8 X 1.25 - 6g, <i>Single Use</i>
1	SXN006	Adapter Assy, Hex, Female, Quick Connect, 5/16"
1	SXN011	Extension, Threaded, 6"
3	SXT019	Connector Shaft for Strike Plate
2	SXT033	Extractor, Nail, Hook, Small
2	SXT034	Extractor, Nail, Hook, Large
3	STP121	Tip, Male, M10 X 1.0 - 6g, <i>Single Use</i>
3	STP122	Tip, Male, M10 X 1.25 - 6g, <i>Single Use</i>
3	STP123	Tip, Male, M10 X 1.5 - 6g, <i>Single Use</i>
3	STP124	Tip, Male, M12 X 1.25 - 6g, <i>Single Use</i>
3	STP130	Tip, Female, 8-32 UNC-2B, <i>Single Use</i>
3	STP131	Tip, Female, 1/4-20 UNC-2B, <i>Single Use</i>
3	STP132	Tip, Female, 3/8-32 UNEF-2B, <i>Single Use</i>
2	SXT043	Extractor, Nail, Solid, 6 mm to 8 mm, <i>Single Use</i>
2	SXT044	Extractor, Nail, Solid, 8 mm to 10 mm, <i>Single Use</i>
2	SXT045	Extractor, Nail, Solid, 10 mm to 12.5 mm, <i>Single Use</i>
2	SXT046	Extractor, Nail, Solid, 12 mm to 15 mm, <i>Single Use</i>
2	SXT047	Extractor, Nail, Solid, 15 mm to 18 mm, <i>Single Use</i>
2	SXT048	Extractor, Nail, Conical, 4 mm to 8 mm, <i>Single Use</i>
2	SXT049	Extractor, Nail, Conical, 8 mm to 12 mm, <i>Single Use</i>
2	SXT050	Extractor, Nail, Conical, 12 mm to 16 mm, <i>Single Use</i>

CASE #2



## Revolutionizing the Art of Revision Surgery

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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**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.



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.