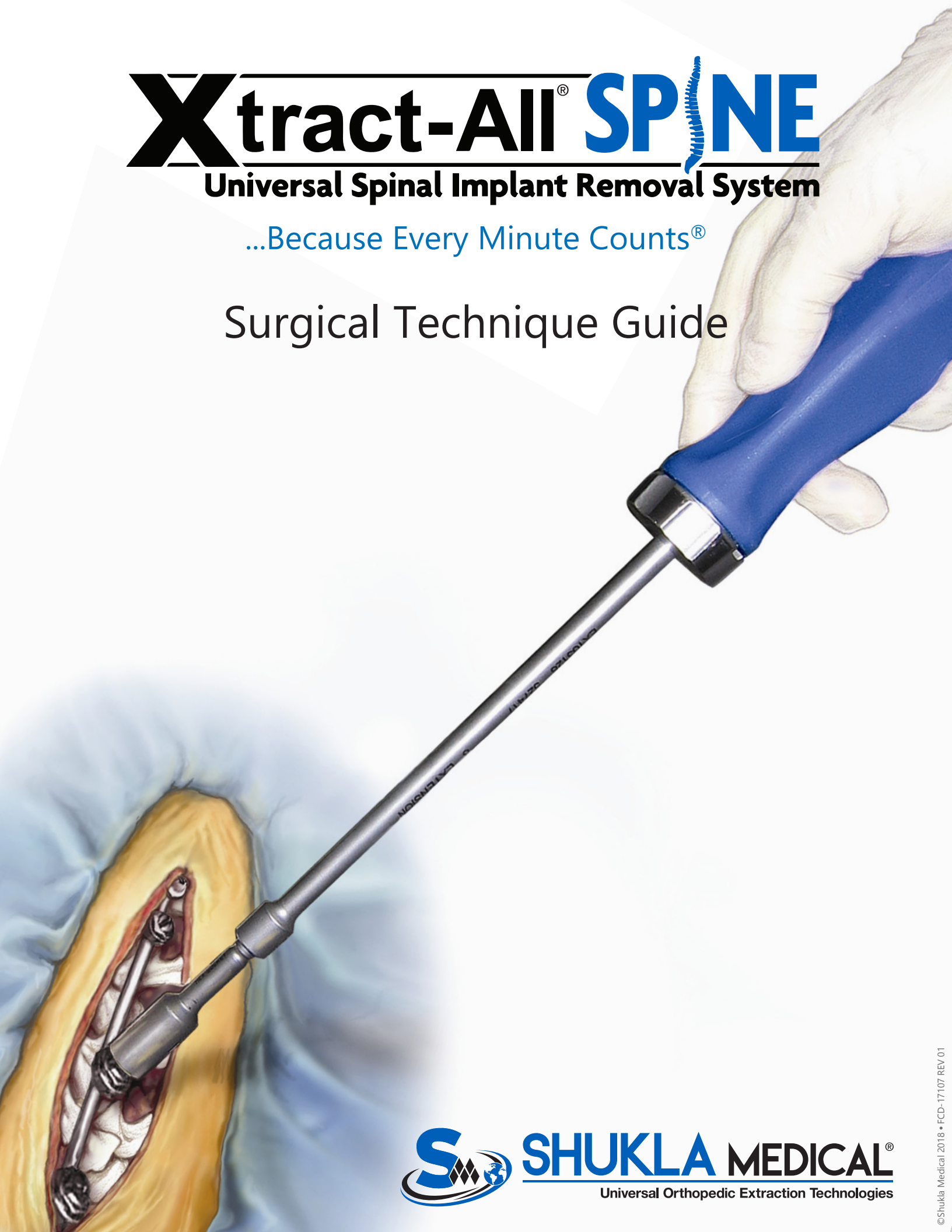


Xtract-All[®] SPINE

Universal Spinal Implant Removal System

...Because Every Minute Counts[®]

Surgical Technique Guide

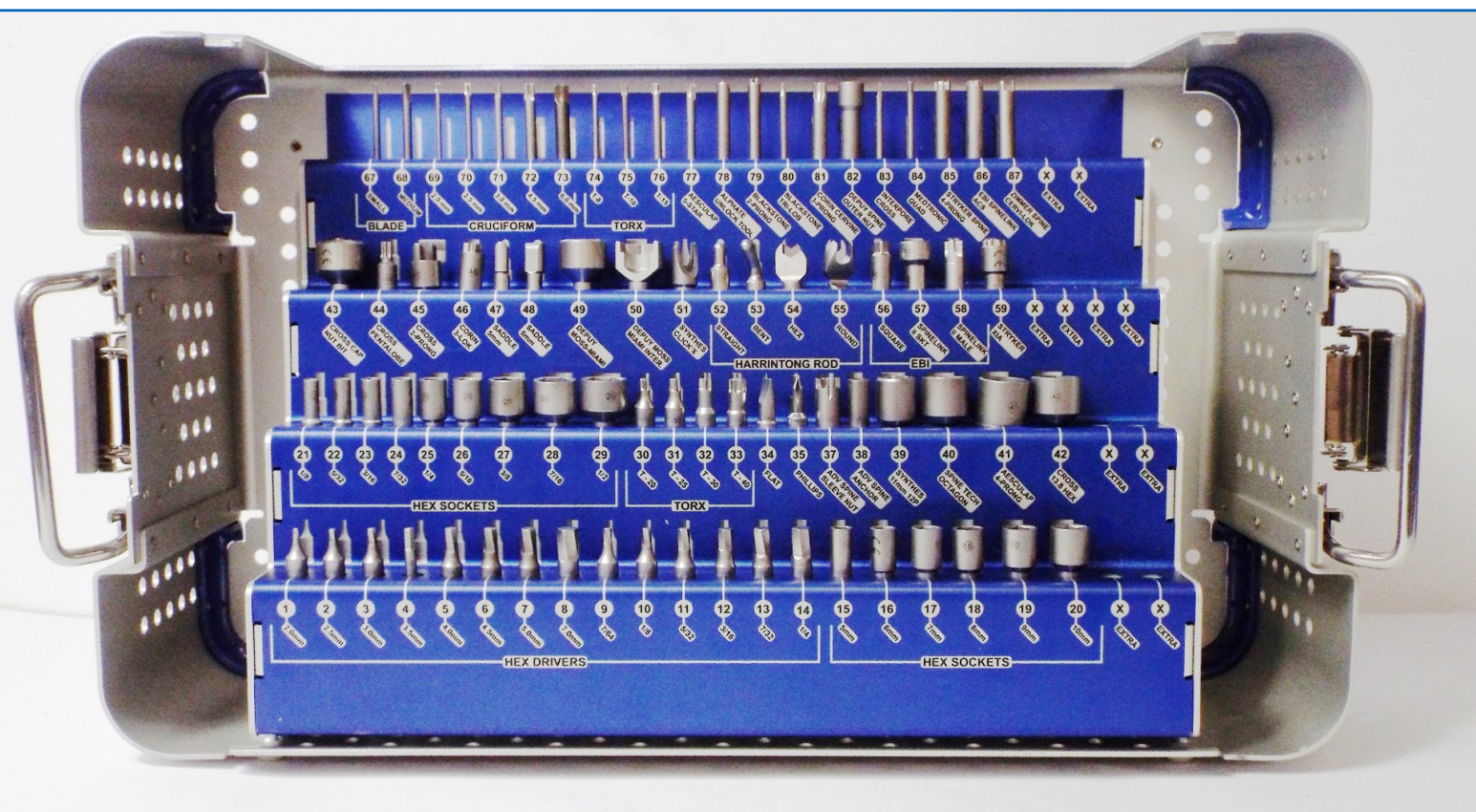


SHUKLA MEDICAL[®]

Universal Orthopedic Extraction Technologies

Contents

Introduction	Page 3
Cleaning & Sterilization	Page 3
List of Components	Page 4
Surgical Technique - Cervical Spine	Page 6
Surgical Technique - Thoracolumbar Spine	Page 7
Implant Removal Tip Compatibility Matrix	Page 11



Spine Case #1, with Spinal Implant Removal Tips

Introduction

Intended Use

The Xtract-All® Universal Spinal Implant Removal System (MKS1031) is designed to ease spinal revisions.

Indications for Use

The Xtract-All® Spine system (MKS1031) is appropriate for most spinal revision cases, and is indicated for use by, or as directed by, a surgeon during spinal revision surgeries. The system includes over 75 implantremoval tips in a wide range of configurations. These tips can be used to remove hardware from virtually any spinal implant company.

Contraindications

The Xtract-All® Spine system is designed to be used when removing spinal hardware with intact screw heads only. The system cannot be used with broken or stripped screws. For broken and stripped screws, please contact Shukla Medical Customer Service for information on the Xtract-All® Screw V.2 (S9SCRW) Universal Broken & Stripped Screw Extraction System.

Cleaning and 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

Warning and Precautions

Preoperative

- The surgeon should be familiar with general principles of revision surgery and techniques for removal of implants.
- The instruments should be inspected for visible damage prior to use. Do not use the product if damage is suspected.
- Only validated cleaning and sterilization procedures should be used

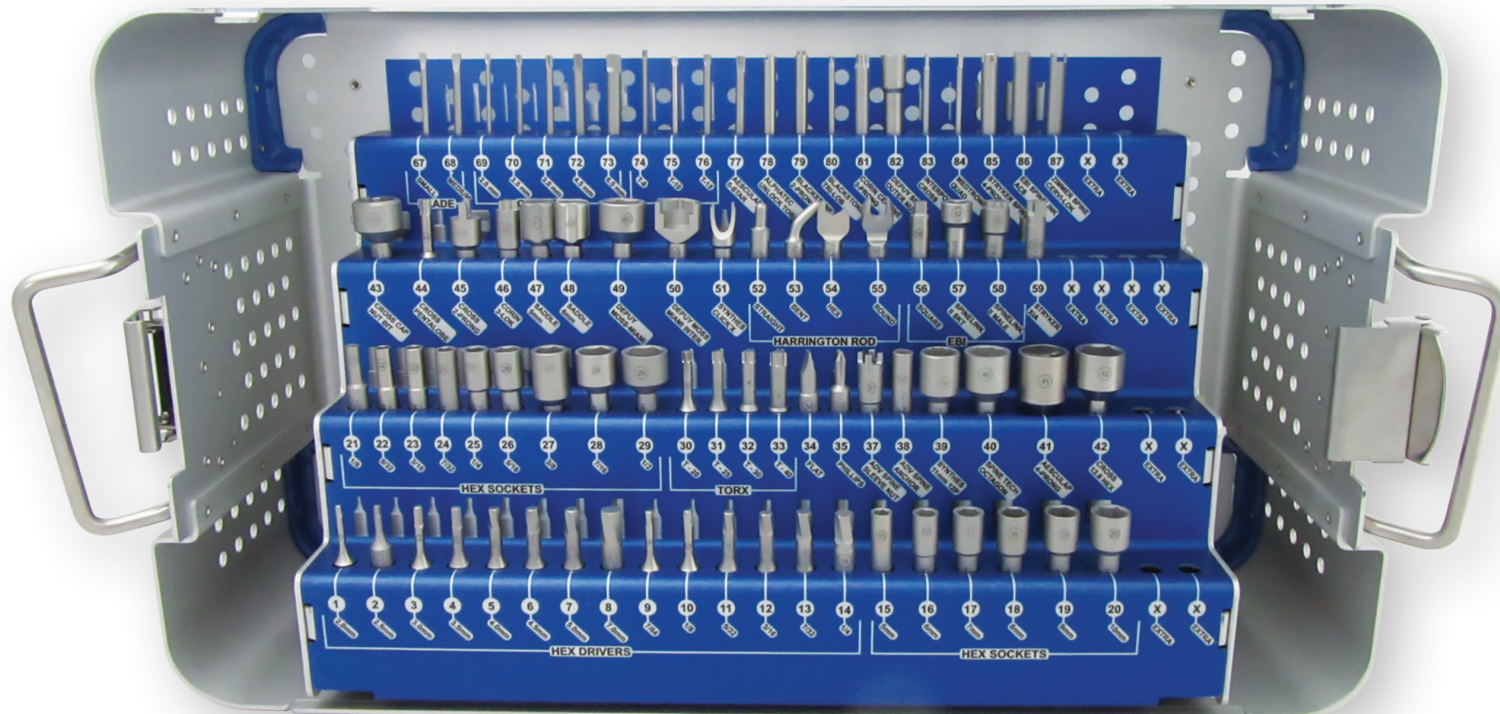
Operative

- Proper handling and storage of the instrumentation is mandatory. Damage to the instrumentation may produce stresses and cause defects, which could become a focal point for failure.
- The surgeon should be cautious with spinal position change and/or excessive force exertion while removing implants using the instrumentation provided in the tray.
- All instrumentation has physical limits. Excessive force may result in instrument failure. It is recommended to maintain access to the Xtract-All® Screw Universal Broken & Stripped Screw Extraction System (S9SCRW) in the event that instrumentation fails.

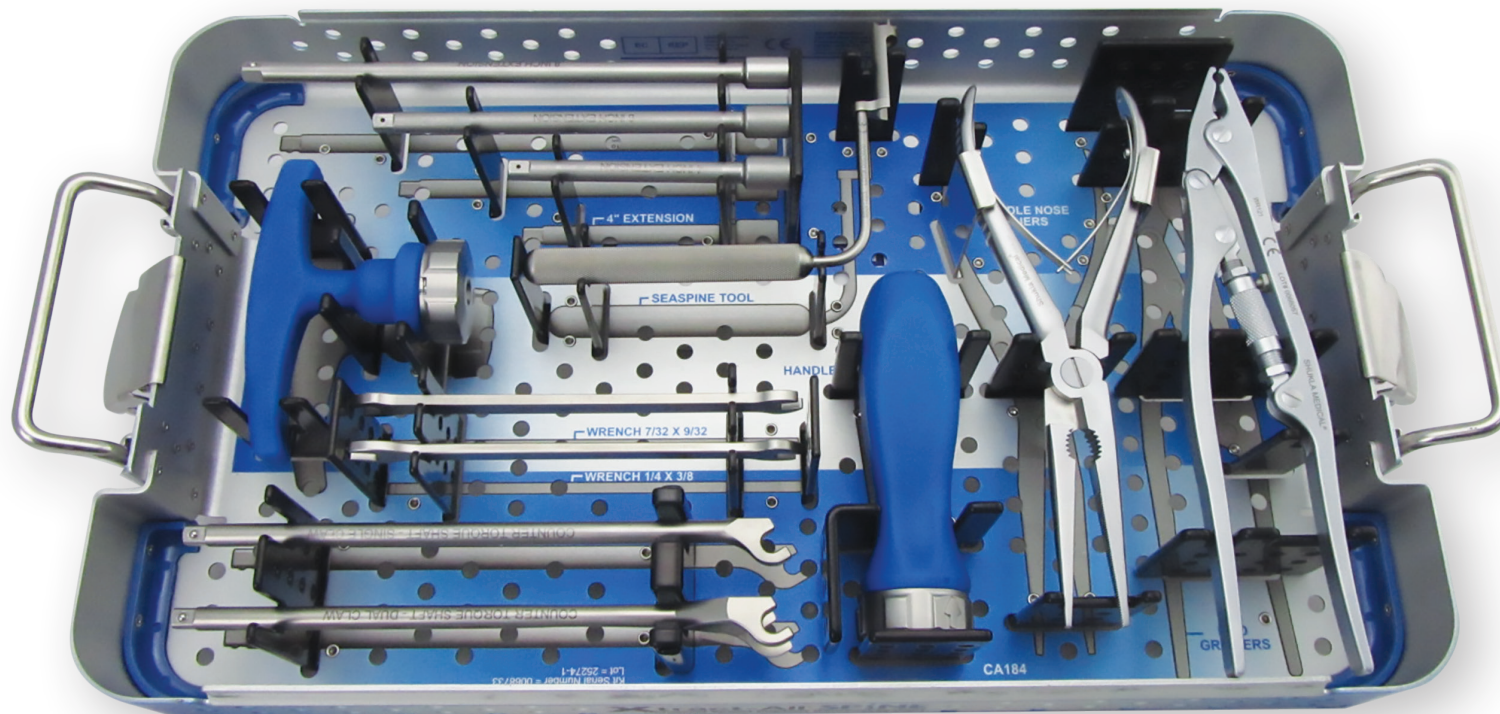


Xtract-All® Spine (MKS1031) Universal Implant Removal System

List of Components: Xtract-All® Spine (MKS1031) Case 1 of 2



MKS1031 Case 1 of 2



MKS1031 Case 2 of 2

Hex

	1	MBT128	2.0mm Hex
	2	MBT129	2.5mm Hex
	3	MBT130	3.0mm Hex
	4	MBT131	3.5mm Hex
	5	MBT132	4.0mm Hex
	6	MBT133	4.5mm Hex
	7	MBT134	5.0mm Hex
	8	MBT135	7.0mm Hex
	9	MBT136	7/64 Hex
	10	MBT137	1/8 Hex
	11	MBT138	5/32 Hex
	12	MBT139	3/16 Hex
	13	MBT140	7/32 Hex
	14	MBT141	1/4 Hex

Hex Sockets

	15	MBT113	5mm Hex Socket
	16	MBT114	6mm Hex Socket
	17	MBT115	7mm Hex Socket
	18	MBT116	8mm Hex Socket
	19	MBT117	9mm Hex Socket
	20	MBT118	10mm Hex Socket
	21	MBT119	1/8 Hex Socket
	22	MBT120	5/32 Hex Socket
	23	MBT121	3/16 Hex Socket
	24	MBT122	7/32 Hex Socket
	25	MBT123	1/4 Hex Socket
	26	MBT124	5/16 Hex Socket
	27	MBT125	3/8 Hex Socket
	28	MBT126	7/16 Hex Socket
	29	MBT127	1/2 Hex Socket

Torx Drivers

	30	MBT142	T-20 Torx
	31	MBT143	T-25 Torx
	32	MBT205	T-30 Torx
	33	MBT206	T-40 Torx

Flat

	34	MBT203	Flat
--	----	--------	------

Phillips

	35	MBT204	Phillips
--	----	--------	----------

Advanced Spine®

	37	MBT151	Advanced Spine® Sleeve Nut
	38	MBT152	Advanced Spine® Anchor

Synthes®

	39	MBT153	Synthes® 11mm 12 pt
--	----	--------	---------------------

Spine Tech®

	40	MBT154	Spine Tech® Octagon
--	----	--------	---------------------

Aesculap®

	41	MBT155	Aesculap® 4-Prong
--	----	--------	-------------------

Cross®

	42	MBT156	Cross, 13.8 Hex
	43	MBT157	Cross® Cap Nut Bit
	44	MBT158	Cross® Pentalobe
	45	MBT159	Cross® 2-Prong

Corin®

	46	MBT160	Corin® 3-LOK
--	----	--------	--------------

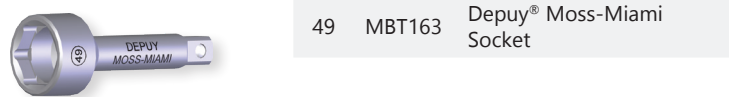
Saddle

	47	MBT161	Saddle 5mm
	48	MBT162	Saddle 6mm



List of Components: Xtract-All® Spine (MKS1031) Case 1 of 2 (cont'd)

Depuy®



49 MBT163 Depuy® Moss-Miami Socket



50 MBT166 Depuy® Moss-Miami Interrupted Socket

Synthes®



51 MBT167 Synthes® Click'X

Harrington Rods & Wrenches



52 MBT168 Harrington Rod, Straight



53 MBT169 Harrington Rod, Bent

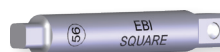


54 MBT170 Harrington Rod, Hex Wrench

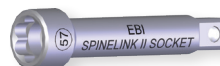


55 MBT171 Harrington Rod, Round Wrench

Biomet® EBI



56 MBT172 EBI® Square



57 MBT173 EBI Spinelink II® Socket



58 MBT174 EBI Spinelink II®

Stryker®



59 MBT191 Stryker® Xia

Blade



67 MBT185 Blade, Small



68 MBT186 Blade, Medium

Cruciform



69 MBT194 2.0mm Cruciform



70 MBT195 2.5mm Cruciform



71 MBT181 3.0mm Cruciform



72 MBT182 4.5mm Cruciform



73 MBT183 6.0mm Cruciform

Torx



74 MBT192 T-8 Torx



75 MBT193 T-10 Torx



76 MBT177 T-15 Torx

Aesculap®



77 MBT175 Aesculap® 5 Star

Alphatec Spine®



78 MBT190 Alphatec® Unlock Tool

Blackstone®



79 MBT187 Blackstone® 2-Prong



80 MBT188 Blackstone® Tri-Lobe

Corin®

81 MBT184 Corin® Cervive, 3-Prong

Depuy®



82 MBT180 Depuy® Spine, Outer Nut Socket

Interpore



83 MBT196 Interpore Cross® Unlocking Tool

Medtronic®



84 MBT179 Medtronic® Quad

Stryker®



85 MBT189 Stryker® Spine 4-Prong

Spinelink



86 MBT178 Spinelink® ACS® EBI

Zimmer®



87 MBT176 Zimmer® Spine Cervi-LOK

List of Components: Xtract-All® Spine (MKS1031) Case 2 of 2

Case 2 Part List

MMI1223 Seaspine® Unlocking Tool Assembly

MHRS0311 Ratcheting In-Line Handle

HD233 Ratcheting T-Handle

MDS1034 8in Extension

MDS1035 6in Extension

MDS1036 4in Extension

MDS1037-M01 Counter Torque Shaft - Single Claw

MDS1038-M01 Counter Torque Shaft - Double Claw

WR119-M01 Double Open-End Wrench 7/32 & 9/32

WR120-M01 Double Open-End Wrench 1/4 & 3/8

WR121-M01 Rod Grippers

WR141-M01 Needle Nose Pliers

CA183 Case 1, CTL Total Spine

CA184 Case 2 Body, CTL Total Spine

CA185 Case 2 Lid, CTL Total Spine



MDS1034 8in Extension



MDS1035 6in Extension



MDS1036 4in Extension



WR120-M01 Double Open-End Wrench 1/4 & 3/8



WR119-M01 Double Open-End Wrench 7/32 & 9/32



HD233 Ratcheting T-Handle



COUNTER TORQUE SHAFT - SINGLE CLAW

MDS1037-M01 Counter Torque Shaft - Single Claw

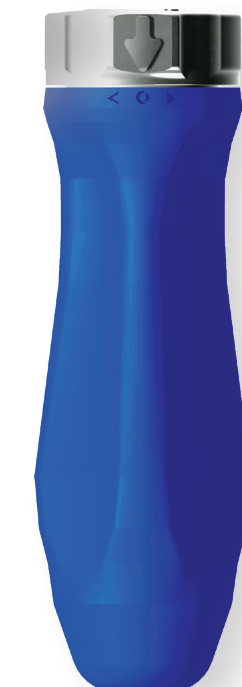


COUNTER TORQUE SHAFT - DUAL CLAW

MDS1038-M01 Counter Torque Shaft - Dual Claw



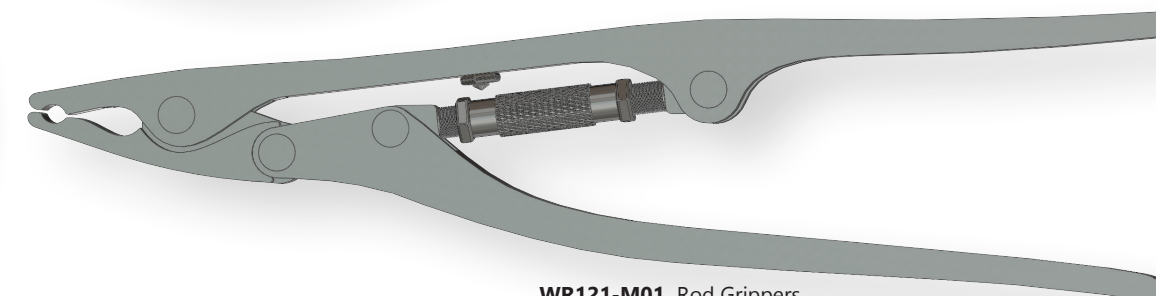
MMI1223 Seaspine® Unlocking Tool Assembly



MHRS0311 Ratcheting In-Line Handle



WR141-M01 Needle Nose Pliers



WR121-M01 Rod Grippers

Cervical Spine

Surgical Technique

- 1 Identify the cervical implant system anterior plates, lateral mass screws, pedicle screws, rods, etc. from the surgical notes and X-rays. Select the appropriate removal tip from the Xtract-All® Spine using the Implant Removal Tip Compatibility Matrix (page 11). If a range of tips is recommended, inspect the locking nuts and screws to visually select the most appropriate removal tip.

If the implant system manufacturer & brand cannot be identified, visually inspect the locking nuts and screws to determine the most appropriate removal tip.

Pre-op Planning: For assistance identifying implants and determining compatible removal tips, please contact Shukla Medical Customer Service and let our team of experts help you.



- 2 Insert the selected removal tip into the ratcheting screwdriver handle (HD233 or MRHS0311). Rotate the handle to shift between clockwise or counter-clockwise driving modes. If necessary, use one of the shaft extensions provided (MDS1034/MDS1035/MDS1036).



- 3 Remove the screws and/or locking nuts with the assembled screwdriver.



- 4 Stabilize and remove the spinal rods with the locking pliers (WR121) and the counter-torque shaft (MDS1037/MDS1038) or the needle-nose pliers (WR141).

- 5 Remove the bone screw using the screwdriver assembly. If needed, use the needle-nose pliers (WR141) to aid with the removal.

Thoracolumbar Spine

Surgical Technique

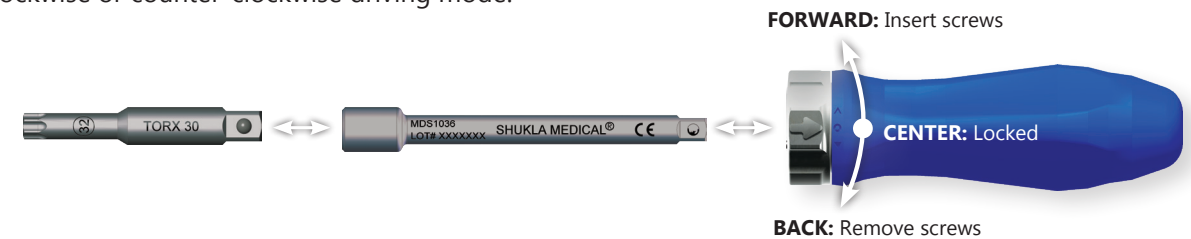
- 1 Identify the TL implant system pedicle screws, anterior TL plates, rods, etc. from the surgical notes and X-rays. Select the appropriate removal tip from the Xtract-All® Spine using the Implant Removal Tip Compatibility Matrix (page 11). If a range of tips is recommended, inspect the locking nuts and screws to visually select the most appropriate removal tip.

If the implant system manufacturer & brand cannot be identified, visually inspect the locking nuts and screws to determine the most appropriate removal tip.

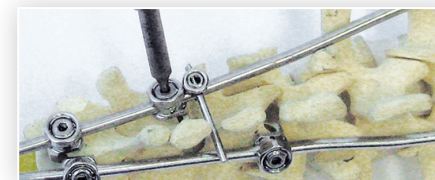
Pre-op Planning: For assistance identifying implants and determining compatible removal tips, please contact Shukla Medical Customer Service and let our team of experts help you.



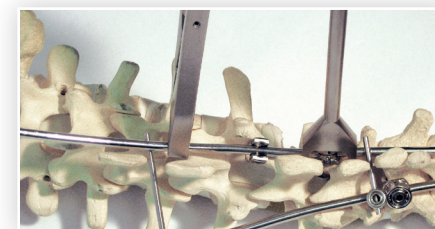
- 2 Insert the selected removal tip into the appropriate shaft extension (MDS1034/MDS1035/MDS1036). Insert the shaft extension into the ratcheting screwdriver handle (HD233 or MRHS0311). Rotate the handle to shift between a clockwise or counter-clockwise driving mode.



- 3 Remove the screws and/or locking nuts with the assembled screwdriver.

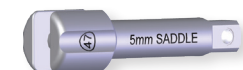


- 4 Stabilize and remove the spinal rods with the locking pliers (WR121) and the counter-torque shaft (MDS1037/MDS1038) or the needle-nose pliers (WR141).



- 5 Select the appropriate pedicle screw removal tip. Assemble the screwdriver as per Step 2.

Note: For manufacturers that do not have an internal configuration at the bottom of their uni-axial pedicle screw, use either the 5mm (MBT161) or 6mm (MBT162) saddle removal tips.



- 6 Remove the pedicle screw using the screwdriver assembly. If needed, use the needle-nose pliers (WR141) to aid with the removal.



Note: For broken and stripped screws, please contact Shukla Medical Customer Service for information on the Xtract-All® Screw Universal Broken & Stripped Screw Extraction System, product code S9SCRW.

For more information about the
Xtract-All® Spine (MKS1031) Universal Spinal Implant Removal System
Call us at 888-4-SHUKLA (888-474-8552) or visit
www.ShuklaMedical.com



...Because Every Minute Counts®