

RESCUE KITS

ESR - Broken Screw Removal Kit

EIR - Atraumatic Implant Removal Kit

HIOSSEN
IMPLANT

ESR Kit

Broken Screw Removal Kit



SR Tip

SR Drill

AR Tip

Simple and quick removal in 2 steps

- Create a hole on the stripped screw and remove it

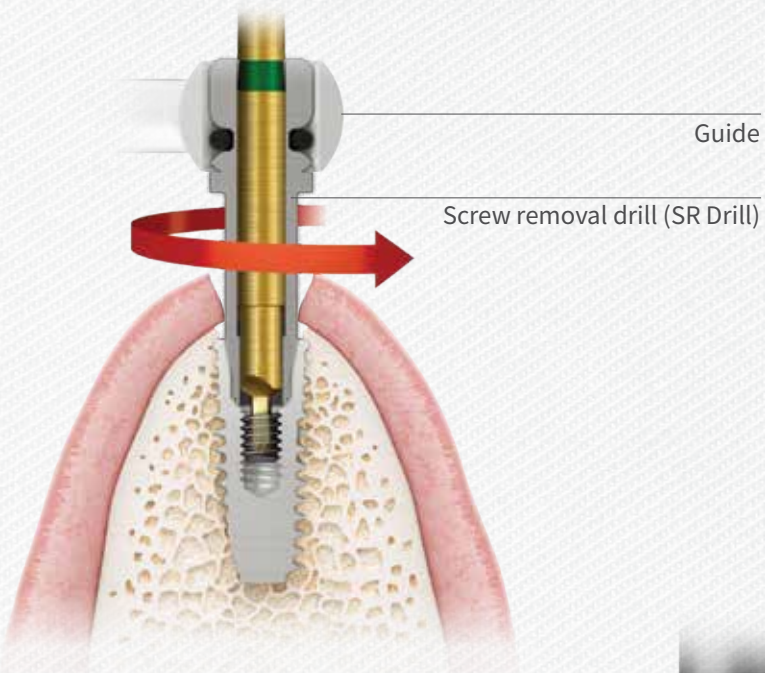
Excellent cutting performance of SR drill

- Highly wear-resistant Tungsten Carbides SR drill

Various applications in prosthetic treatment failures

- Fractured abutment screw
- Abutment fracture
- Abutment screw hex damage
- Damaged internal screw thread



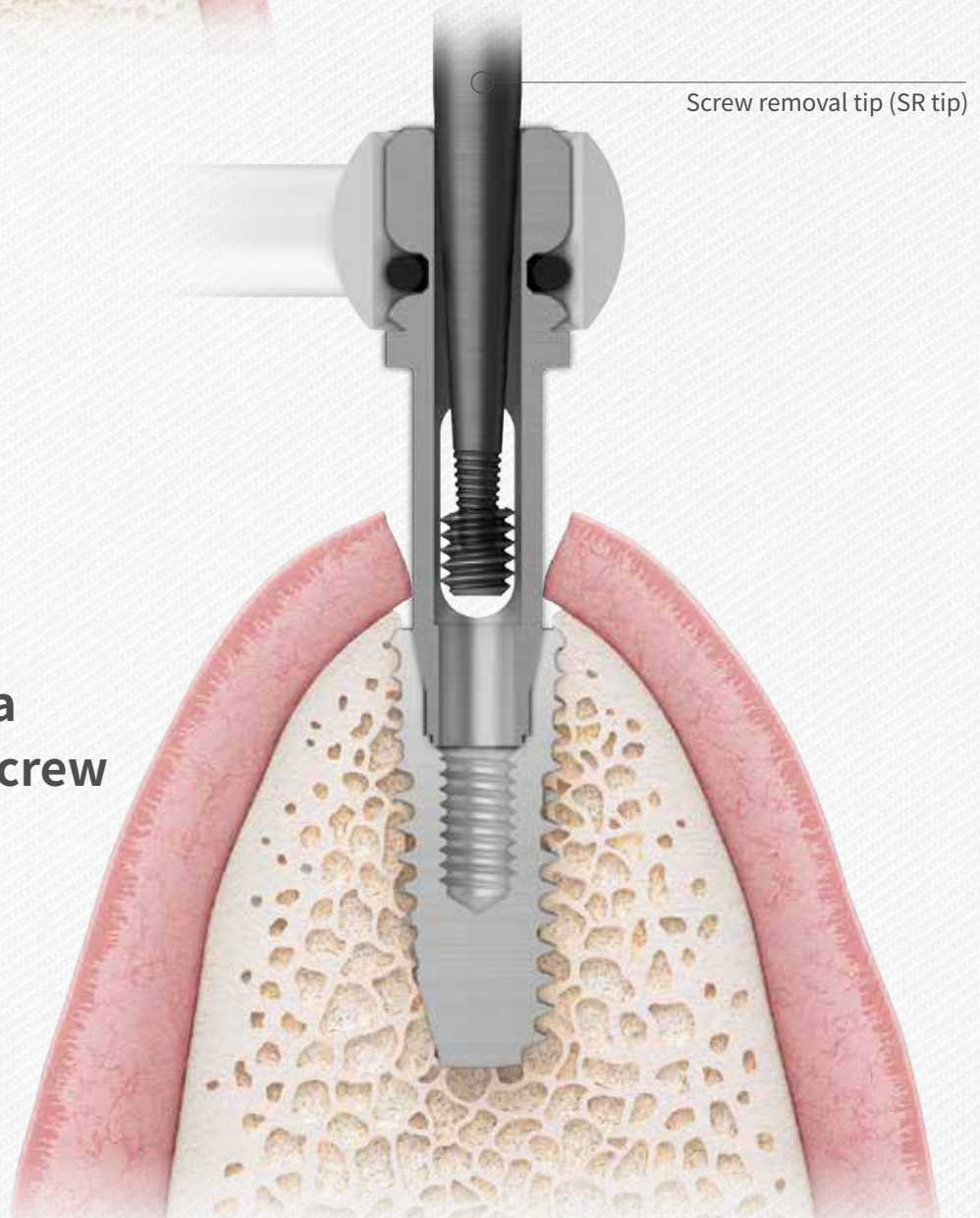


1.

Creating a hole on the stripped screw

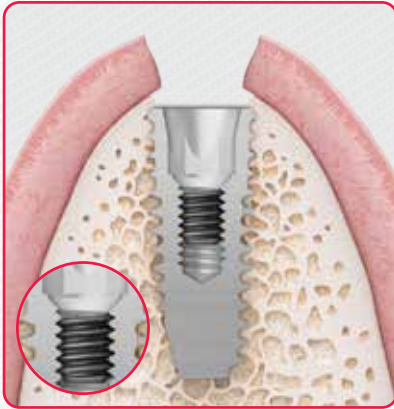
2.

Removing a fractured screw

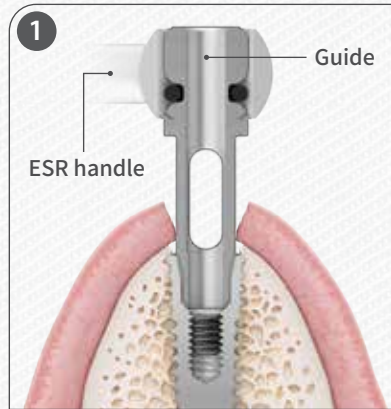


Removal process

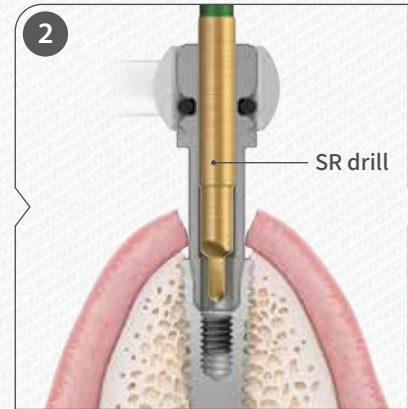
Removal of a Fractured Screw



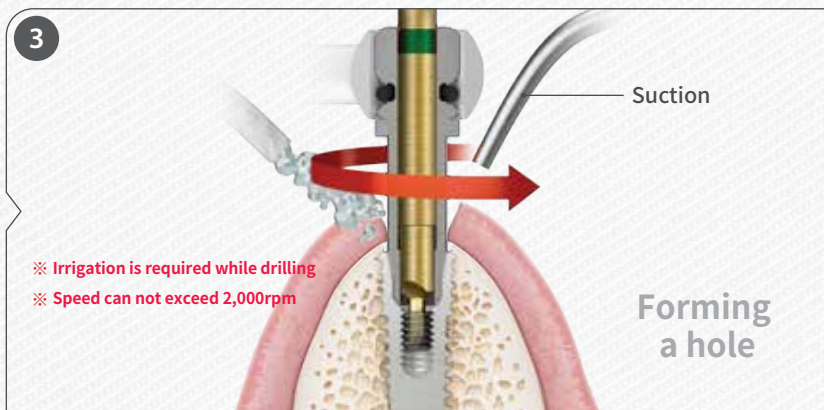
In order to use the screw removal, the abutment must be removed from the implant



1 Insert the Guide into the implant making sure that the hex of the of the guide lines up with the internal hex of the implant



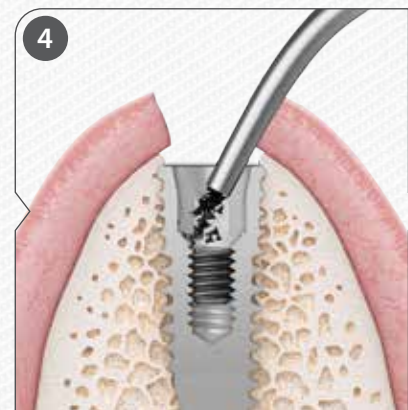
2 With the ESR guide handle in place, insert the SR drill on the handpiece and make sure to contact the remaining portion of the screw



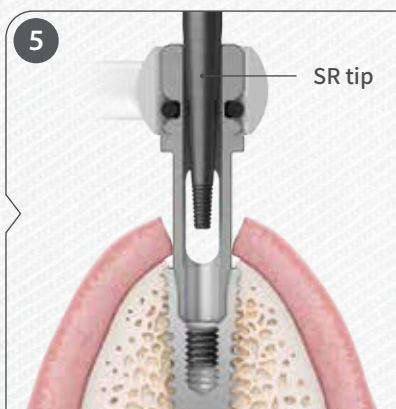
- ※ Irrigation is required while drilling
- ※ Speed can not exceed 2,000rpm

Forming a hole

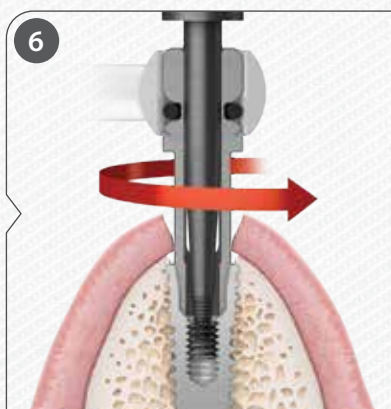
3 With light pressure, turn the drill counterclockwise with a drilling speed of 1200~1500rpm, using irrigation and periodic suction until the red marking on the SR drill is no longer seen



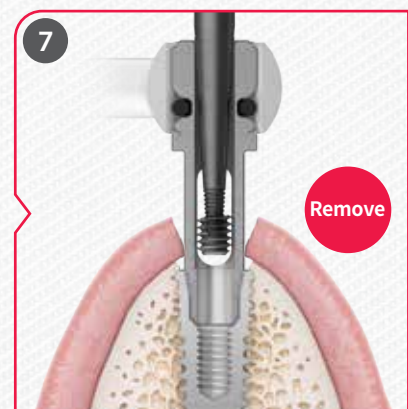
4 When complete, remove the guide and suction through any metal debris



5 Place the SR tip into the guide and push it down with moderate pressure to engage it

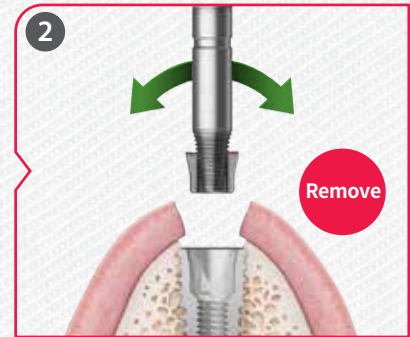
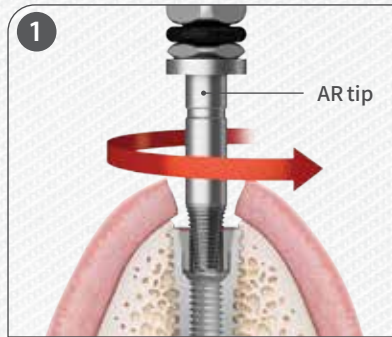
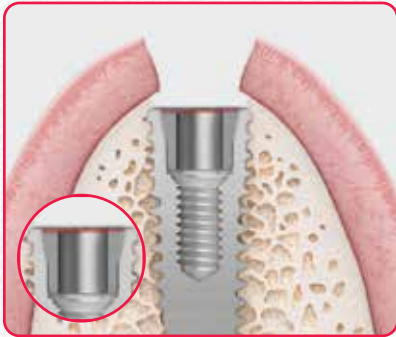


6 With the screw engaged, rotate the tool counterclockwise until the screw is completely disengaged from the implant threads



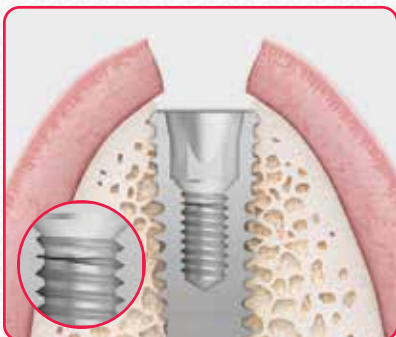
7 **Remove**
※ Metal debris are created during the removal process. They need to be removed with irrigation and air blast after screw removal.

Removal of a Fractured Abutment

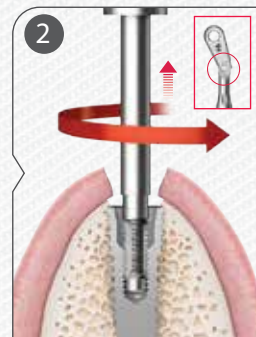
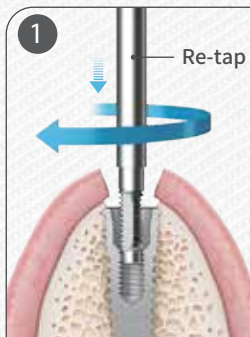


1. Insert the abutment removal (AR) tip into the abutment screw hole. Rotate the tip in reverse mode
2. Hold AR tip with a forcep and sway it outward to remove the fractured abutment from the implant

Screw Thread Retrieval

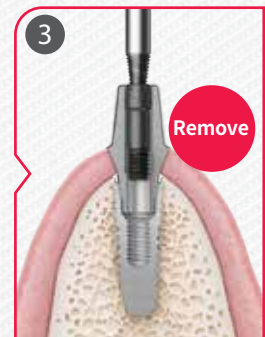
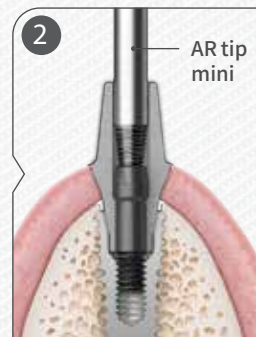
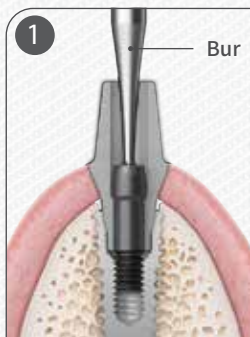


Verify the implant is completely clean and free of debris



1. Insert the re-tap into the implant, connect the torque wrench and slowly rotate it with 30Ncm clockwise
2. When the neck of the torque wrench is bent, remove the re-tap by rotating in reverse mode
3. Repeat the step with new Re-tap drill until the tap drill tip gets to the bottom. Remove the re-tap drill

Abutment Screw Hex Damage

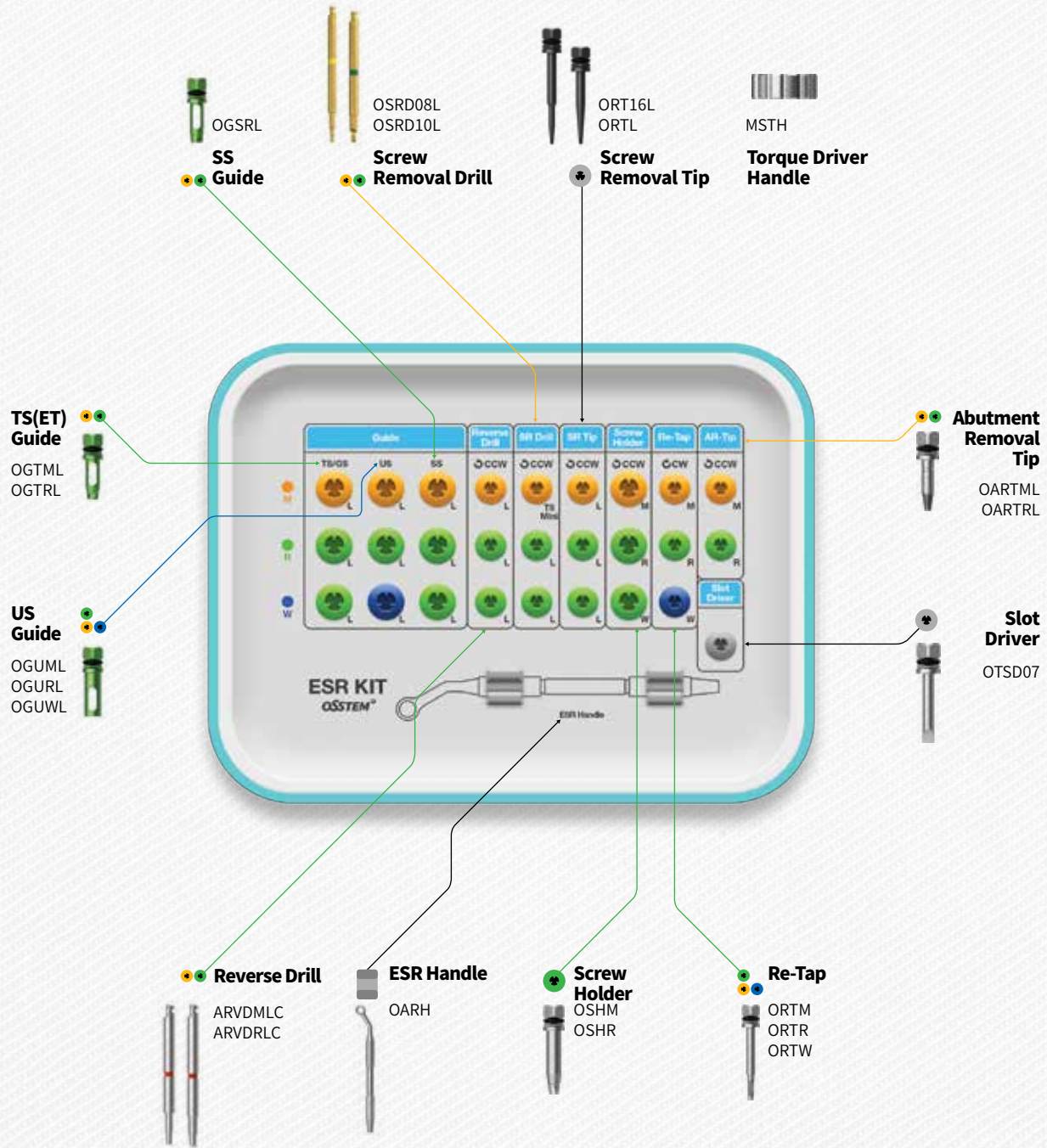


1. Create a hole with $\text{Ø}0.8$ round bur in the abutment screw hex
2. Connect the abutment removal (AR) tip mini to the screw hex hole and remove the abutment screw in reverse rotation

ESR KIT SURGICAL INSTRUMENTS

ESR SIMPLE KIT : OESRK

Compatible with **TS (ET) System** **SS System** **US System**

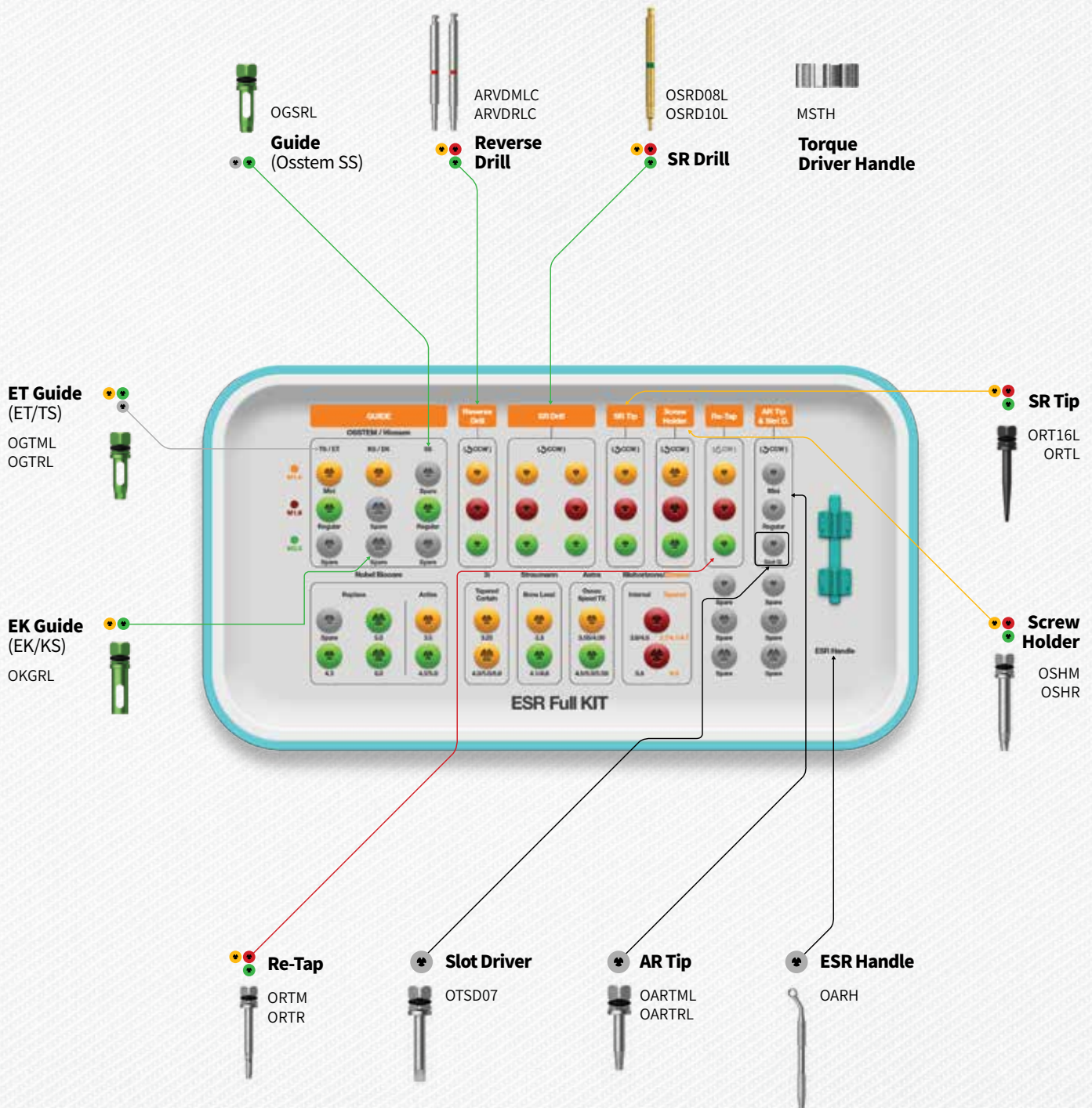


ESR FULL KIT SURGICAL INSTRUMENTS

ESR FULL KIT : OESRFK_US

Compatible with **TS (ET) System** **SS System** **US System**





Nobel Biocare Active/Replace / Straumann Bone Level / Astra Osseo Speed TX
 3i Full OSSEOTITE Tapered Certain / Zimmer Tapered / BioHorizons® Internal



Guide

- Directly connect to the implant to prevent wobbling of the reverse driver, SR drill and retap
- Long and short types are available depending on the intermaxillary distance
- Check the implant system and diameter before choosing the Guide
- Use with ESR handle
- Recommended number of use: up to 10 times

Osstem						
Type	Length	Mini	Regular	Wide		Image
ET(TS)	Short	OGTMS	OGTRS	-		
	Long	OGTML	OGTRL	-		
EK(KS)	Short	-	OKGRL	-		
	Long	-		-		
SS	Short	-	OGSRS	OGSRS		
	Long	-	OGSRL	OGSRL		
Nobel Biocare						
Type	Length	Ø4.3	Ø5.0	Ø6.0		Image
Active	Short	OGNA02S	OGNA02S	-		
	Long	OGNA02L	OGNA02L	-		
Replace	Short	OGNR02S	OGNR03S	OGNR04S		
	Long	OGNR02L	OGNR03L	OGNR04L		
	Length	Ø3.3	Ø3.75	Ø4.0	Ø5.0	
MkIII	Short	OGUMS	OGURS	OGURS	OGUWS	
	Long	OGUML	OGURL	OGURL	OGUWL	
Straumann						
Type	Length	NC (3.3)	RC (4.1)	RC (4.8)		Image
Bone Level	Short	OGSB01S	OGSB02S	OGSB02S		
	Long	OGSB01L	OGSB02L	OGSB02L		
	Length	RN (3.3 / 4.1 / 4.8)		WN (4.8)		
Roxolid SLActive	Short	OGSTROS		OGSTROS		
	Long	OGSTROL		OGSTROL		
Astra						
Type	Length	Small (3.5S)		Large (4.5 / 5.0 / 5.0S)		Image
Osseo Speed TX	Short	OGA001S		OGA002S		
	Long	OGA001L		OGA002L		
3i						
Type	Length	Green (3.7 / 4.1 / 4.7)		Green (6.0)		Image
Tapered	Short	OGZB01S		OGZB02S		
	Long	OGZB01L		OGZB02L		

3i					
Type	Length	3.25	4.0 / 5.0 / 6.0		Image
Full Osseotite Tapered Certain	Short	OGIF01S	OGIF02S		
	Long	OGIF01L	OGIF02L		
Full Osseotite Tapered	Short	-	OGURS		
	Long	-	OGURL		
BioHorizons					
Type	Length	Yellow / Green	Blue		Image
Full Osseotite Tapered Certain	Short	OGZB01S	OGZB02S		
	Long	OGZB01L	OGZB02L		
Type	Length	Ø3.5	Ø4.0	Ø5.0 / Ø6.0	
External	Short	OGUMS	OGURS	OGUBS	
	Long	OGUML	OGURL	OGUBL	

Reverse Drill

- Used to remove a fractured screw
- To be used in conjunction with the guide
- If the red marking of the reverse driver is visible on the guide, remove the fractured screw using a screw holder
- Direction of rotation : Counterclockwise
- Recommended number of usage: 10 times

L	Type	M1.6	M1.8	M2.0
	Short	-	ARVDRSC	ARVDRSC
	Long	ARVDMLC	ARVDRLC	ARVDRLC



ESR Handle

- Stabilizes the Guide to the implant

OARH



Screw Removal Drill (SR Drill)

- Used to create a hole in the fractured screw
- Make sure to connect the guide, irrigate and suction to remove any debris
- Available in long and short lengths for different intermaxillary distances
- Drill until the colored marking on the drill is no longer visible through the guide
- Recommended speed: 1,200~1,500 rpm (counterclockwise)
- Single use only
- Connect the guide before use/Do not apply excessive vertical force/Do not clean with hydrogen peroxide

L	Type	M1.6	M1.8	M2.0
	Short	OSRD08S	OSRD09S	OSRD10S
	Long	OSRD08L	OSRD09L	OSRD10L



Screw Removal Tip (SR Tip)

- Removes a fractured screw by engaging into the hole created by the Screw Removal Drill
- Rotating direction : Counterclockwise
- Single use only

L	F	M1.6	M1.8	M2.0
Short		ORT16S	ORT18S	ORTS
Long		ORT16L	ORT18L	ORTL



Torque Driver Handle

- Manual handle for SR Tip, AR Tip, screw holder



MSTH

Abutment Removal Tip (AR Tip)

- Removes fractured or jammed abutments and mounts from the implant
- Insert into the fractured abutment hole, turn counterclockwise, and rock back and forth to loosen and remove it with forceps
- Mini : it can be used to remove a screw with a stripped hex
 - To remove the screw, engage the tip into the stripped hex and rotate it counterclockwise

L	F	Mini	Regular
Short		OARTMS	OARTRS
Long		OARTML	OARTRL
Ex.Long		OARTMEL	OARTREL



Re-tap

- Re-threads the internal connection of a implant
- Connect it to a torque wrench or ratchet wrench to re-thread by hand

Type	M1.6	M1.8	M2.0
	ORTM	ORTR18	ORTR



Slot Driver

- Used to unscrew a screw, healing abutment, cover screw or abutment screw with a stripped hex after creating a slot with a $\varnothing 0.8$ bur.

OTSD07



Screw Holder

- Grasps onto a protruding fractured screw to unscrew it
- Color-coded for easy recognition
- Rotation direction : Counterclockwise

Type	M1.6	M1.8	M2.0
	OSHM	OSHR18	OSHR



Reverse Driver

- Used to remove a fractured screw
- To be used in conjunction with the guide
- Insert until the red band is in the Guide and turn counterclockwise to remove the screw
- Use Manually/Rotate counterclockwise/
- Recommended number of use: Up to 10 times.

L	F	Mini	Regular/Wide
Short		-	ORVDRS
Long		ORVDML	ORVDRL



Transfer Abutment Separate Tool Available as a single product

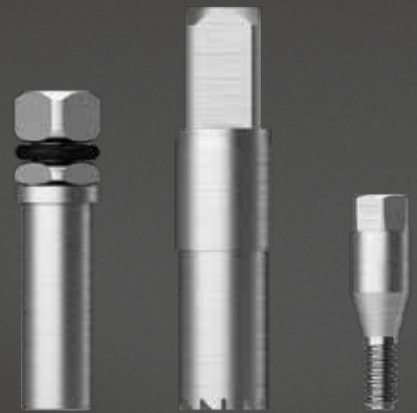
- Remove jammed abutment of non-hex type transfer abutment
- The tip is for mini platform abutments; the next step for regular platform
- Remove the abutment screw, insert the separate tool body into the abutment, tighten clockwise with a driver, and remove the abutment. If there is difficulty separating the abutment, attach a ratchet wrench for extra torque.

F	Driver	Body	Set
	TASD	TASB	TAST



EIR Kit

Atraumatic Implant Removal Kit



Screw
Driver

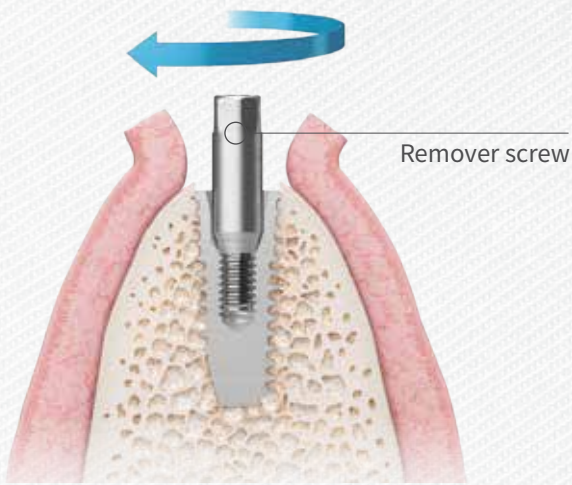
Remover
Body

Remover
Screw

| Remove failing or misplaced implants in only 3 steps

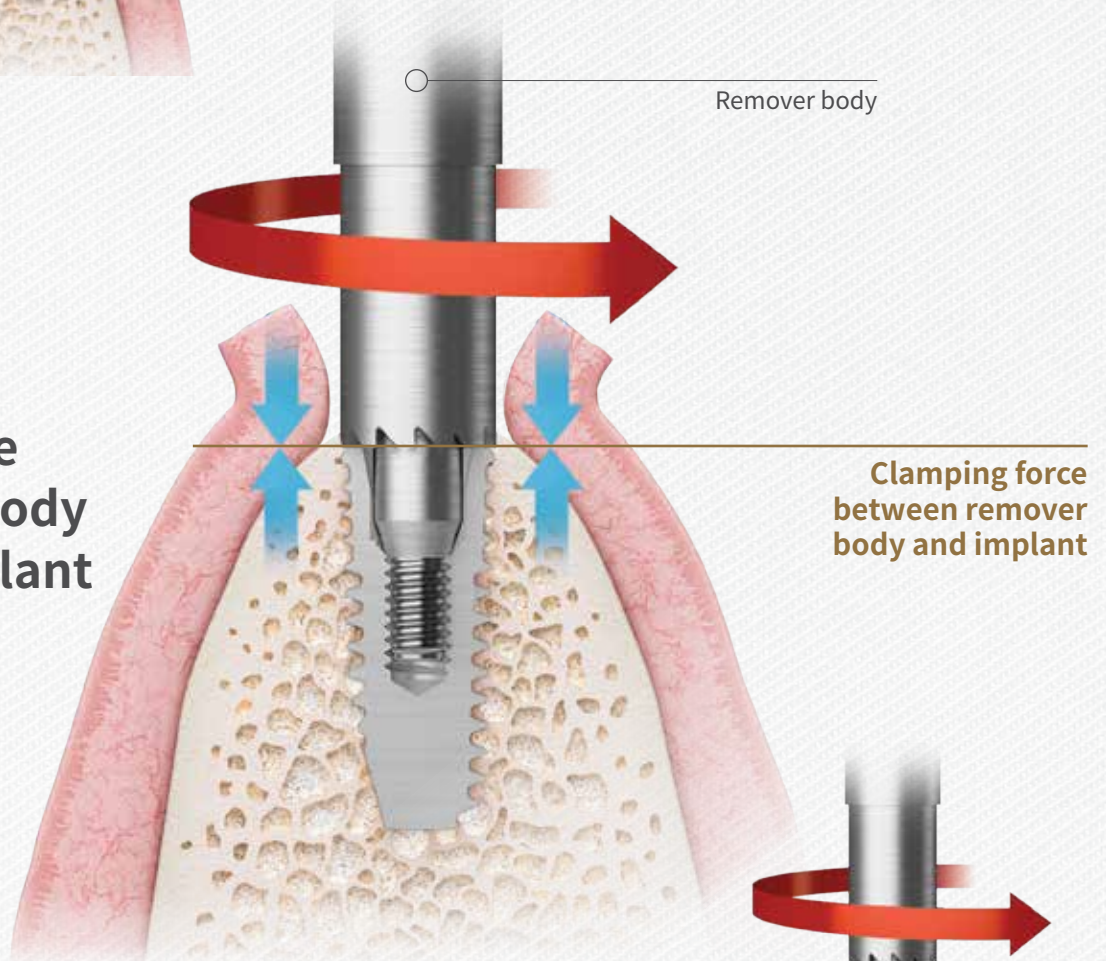
| Implant removal with minimal bone loss

| Up to 400Ncm removal torque can be applied

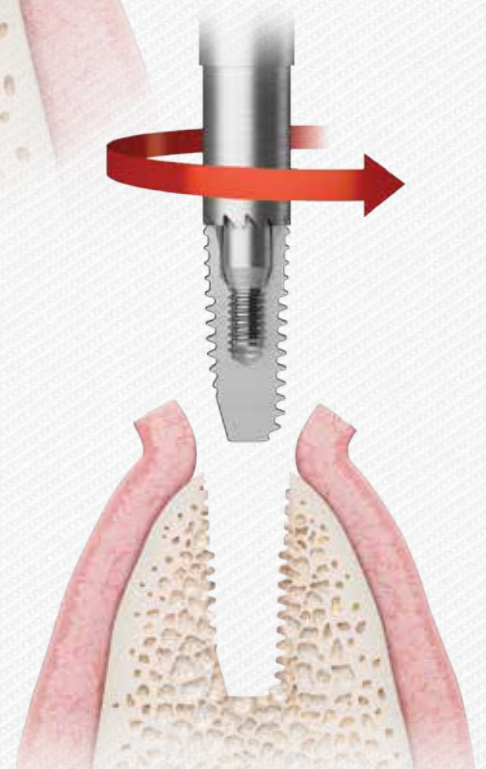


1.
**Connect the remover screw
on the implant**

2.
**Engage the
remover body
to the implant**

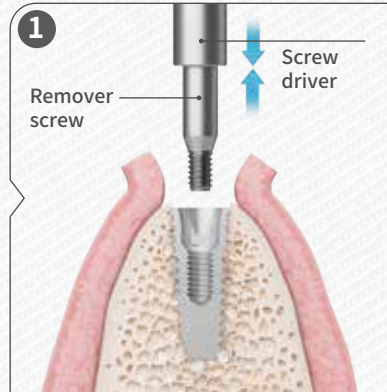
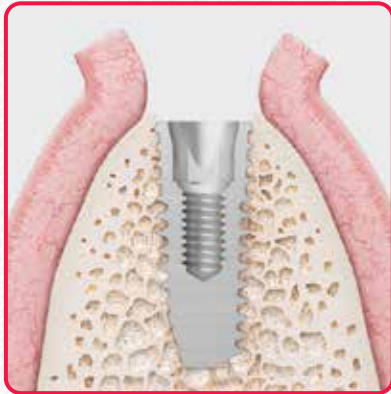


3.
**Remove the
implant**

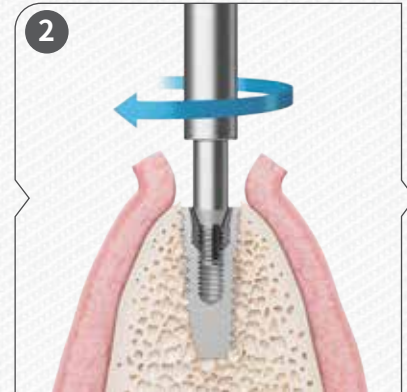


Removal process

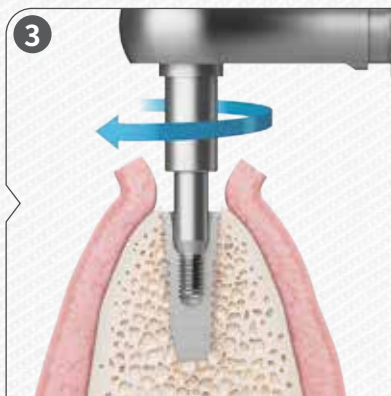
For implant removal



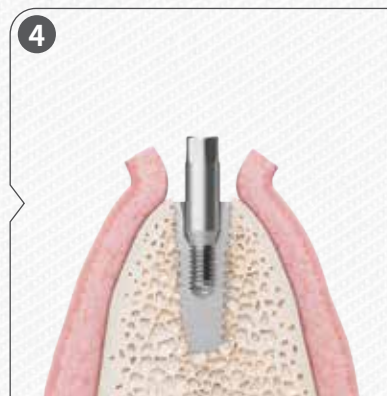
Select the remover screw that matches the implant system TS(ET)/SS. Select the right remover screw depending on the condition of the implant (normal vs. fracture, refer to the remover selection guideline)



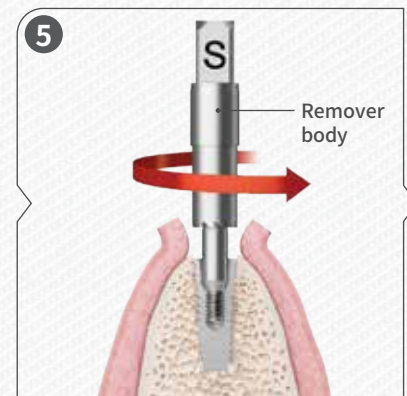
Connect the screw driver to the implant preliminarily by hand and rotate the driver clockwise



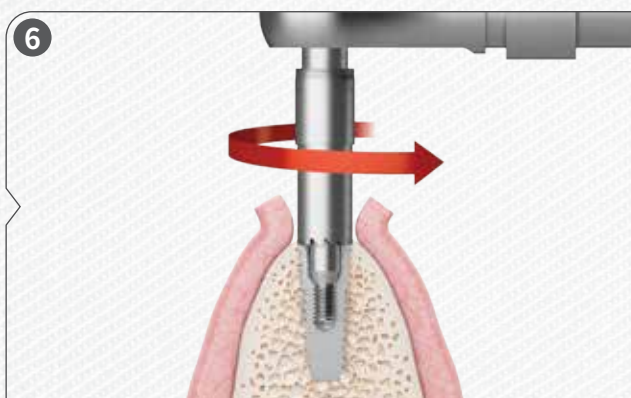
Engage the torque wrench on the screw driver and tighten the screw driver clockwise. (mini 60Ncm, regular/wide 80Ncm)



The remover screw is now installed.



Select the right type of remover body of for the implant diameter and preliminarily rotate the screw with hand counterclockwise.



Mount the torque wrench on the remover body and rotate counterclockwise (Max. 400Ncm engagement possible)

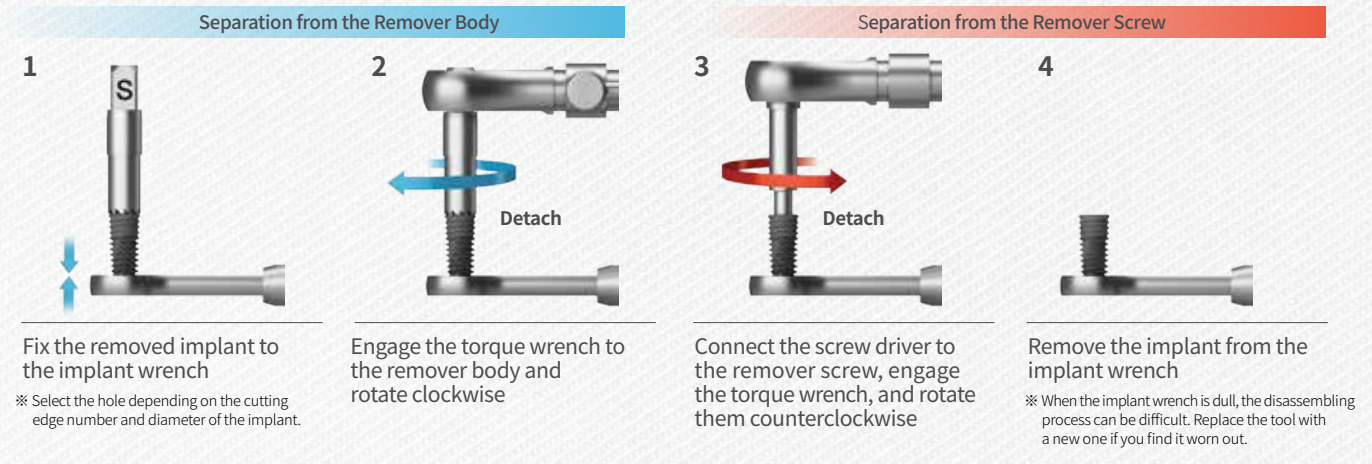
※ To prevent overheating, irrigation to the remover body and implant is required.

NOTE In case of excessive force of 400Ncm or more, stop tapping immediately. Disassemble the tool from the implant, and remove the cortical bone with slight trephine drilling to make the removal process easier.



Bone loss-less implant removal by strong adhesion property between implant and removal body.

Disassemble the removal tool from the implant

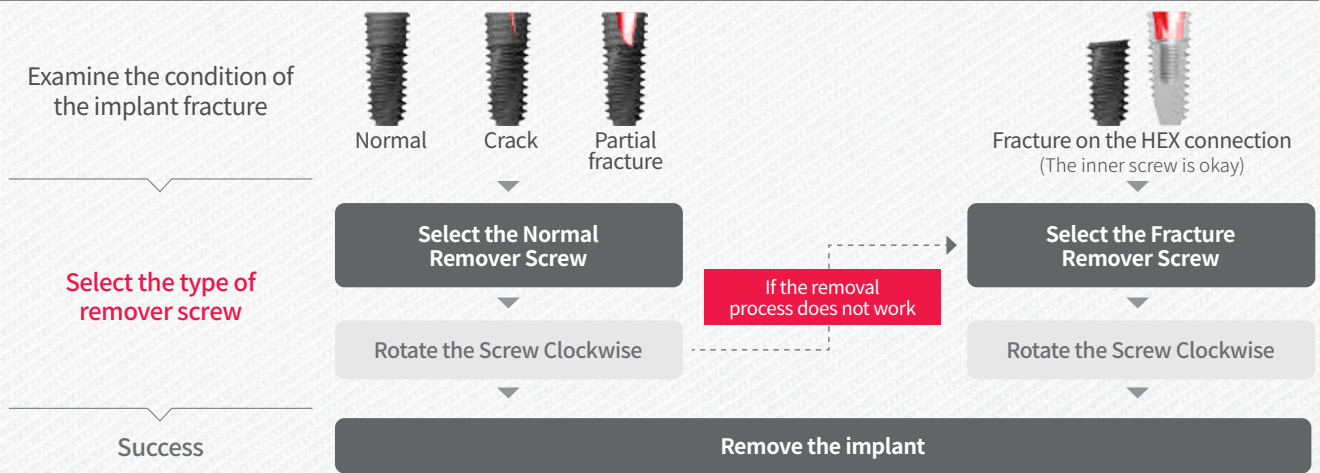


Guide to Remover Screw Selection

Select the type of Screw

Identify the Implant System	TS (ET)			SS		US		
Identify the Implant Size	Ø3.5	Ø4.0~ Ø4.5	Ø5.0~ Ø7.0	P4.8	P6.0	Mini	Regular	Wide
Select the type of Remover Screw	F3.5	F4.0 / 4.5	F5.0	P4.8 <small>(Compatible with TS, too)</small>	P6.0 <small>(Compatible with TS, too)</small>	F3.5 <small>(Exclusive to US)</small>	F4.0 / 4.5 <small>(Exclusive to US)</small>	F5.0 <small>(Exclusive to US)</small>
Color	Yellow	Green	Blue	Green	Blue	Yellow	Green	Blue

Select the Remover Screw



※ If the upper part of the implant is fractured, first select the Normal Remover Screw and rotate it with the Remover Body. If the implant is still not removed repeat the process with the Fracture Remover Screw.
 ※ If the internal screw is damaged and the implant cannot be removed with the ESR kit, it is recommended to use a Trepphine drill.

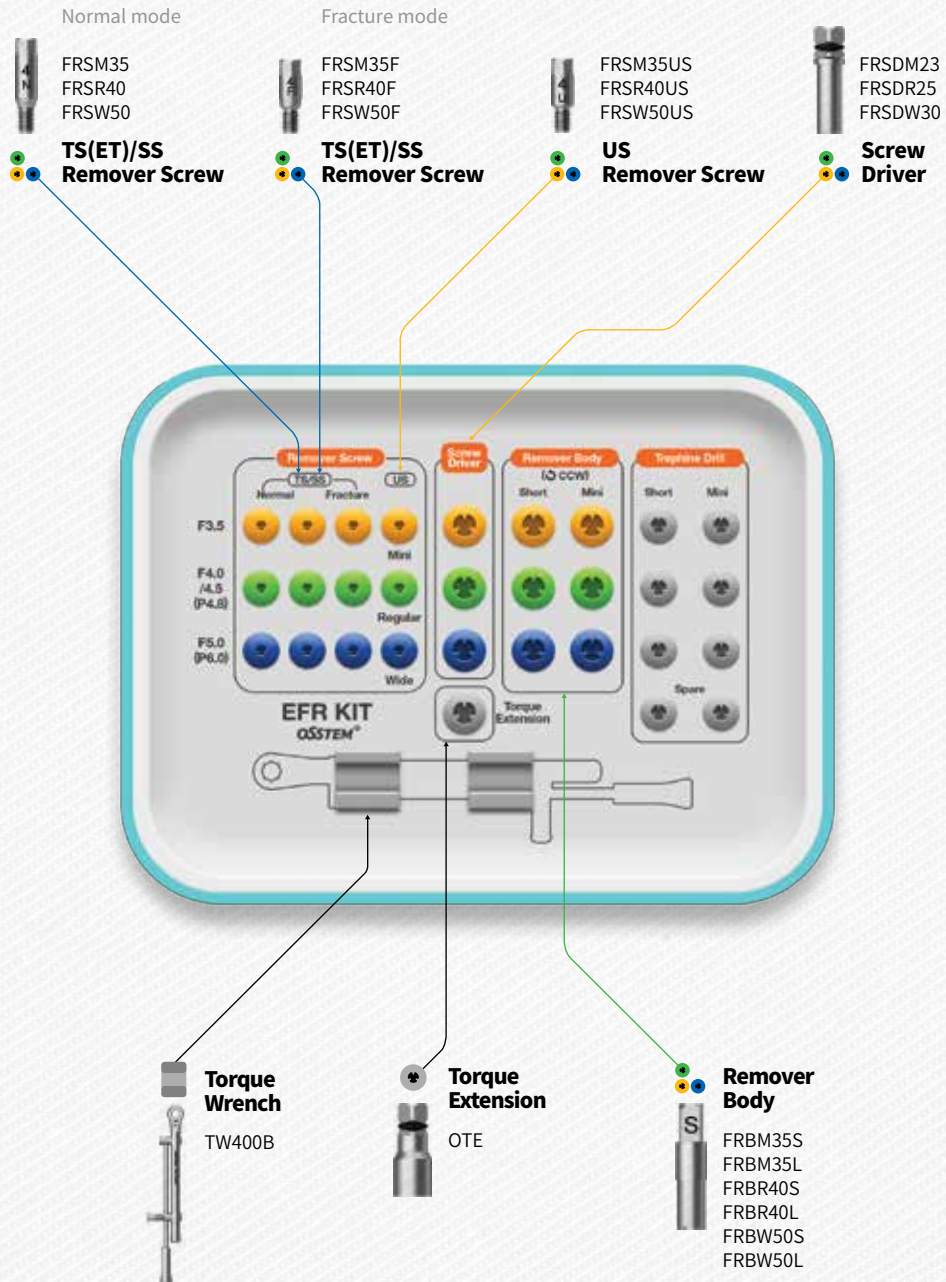
EIR KIT SURGICAL INSTRUMENTS

EIR SIMPLE KIT: OSFRK

Compatible with **TS(ET) System** **SS System** **US System**

Top panel components

Implant Wrench
FRDFE



EIR FULL KIT SURGICAL INSTRUMENTS

EIR FULL KIT: OSFRFK_US

Compatible with TS(ET) System SS System US System

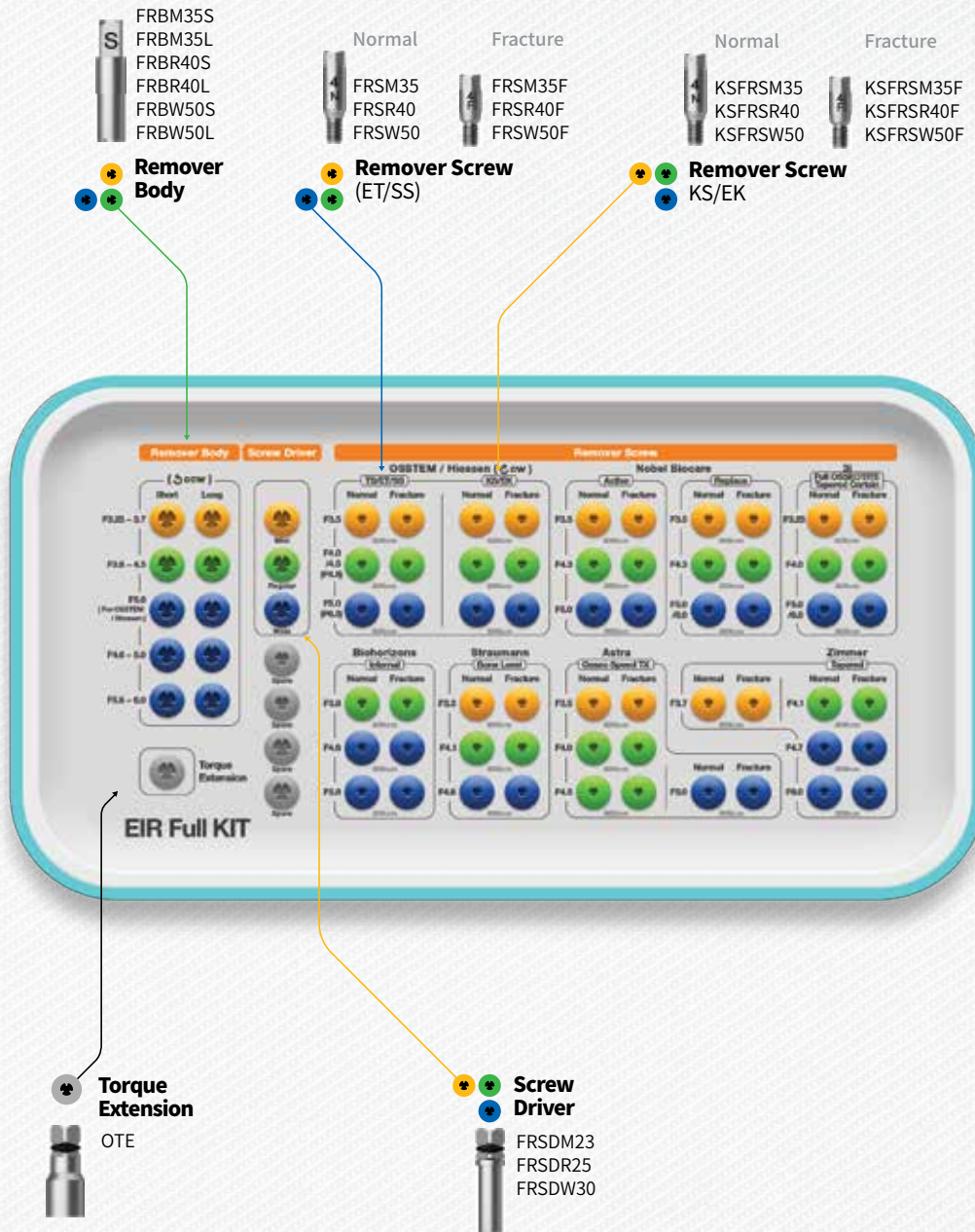
Nobel Biocare Active/Replace / Straumann Bone Level / Astra Osseo Speed TX
 3i Full OSSEOTITE Tapered Certain / Zimmer Tapered / BioHorizons® Internal

Lower panel components

Implant Wrench
FRDFE



Torque Wrench
TW400B



Remover Screw

- The Remover Screw anchors on the implant to rotate the remover body to remove the implant
- Choose the right tool depending on the type and diameter of the failed implant
- Select Remover Screw (fracture) to remove an implant with cracks
- Recommended torque : regular/wide 80Ncm, mini 60Ncm
- Single Use Only



Osstem					
Type	Mode	Mini Ø3.5	Regular Ø4.0~4.5/P4.8	Wide Ø5.0/P6.0	
ET/SS	Normal Fracture	FRSM35 FRSM35F	FRSR40 FRSR40F	FRSW50 FRSW50F	
EK	Normal Fracture	KSFRSM35 KSFRSM35F	KSFRSR40 KSFRSR40F	KSFRSW50 KSFRSW50F	
Nobel Biocare					
Type	Mode	Mini Ø3.5	Regular Ø4.3	Wide Ø5.0/6.0	
Active	Normal Fracture	FRSMNA35 FRSMNA35F	FRSR40 FRSR40F	FRSW50 FRSW50F	
Replace	Normal Fracture	FRSMNR35 FRSMNR35F	FRSR40 FRSR40F	FRSW50 FRSW50F	
Straumann					
Type	Mode	Mini Ø3.3	Regular Ø4.1	Wide Ø4.8	
Bone Level	Normal Fracture	FRSMS33 FRSMS33F	FRSRS41 FRSRS41F	FRSWS48 FRSWS48F	
3i					
Type	Mode	Mini Ø3.25	Regular Ø4.0	Wide Ø5.0/6.0	
Full Osseotite Tapered Certain	Normal Fracture	FRSMS33 FRSMS33F	FRSRI40 FRSRI40F	FRSWI50 FRSWI50F	
Biohorizons					
Type	Mode	Mini Ø3.8	Regular Ø4.6	Wide Ø5.8	
Internal	Normal Fracture	FRSRZ41 FRSRZ41F	FRSWZ47 FRSWB46F	FRSWZ60 FRSWB46F	
Astra					
Type	Mode	Mini Ø3.5	Regular Ø4.0	Regular Ø4.5	Wide Ø5.0
Osseo Speed TX	Normal Fracture	FRSMNA35 FRSMNA35F	FRSRA40 FRSRA40F	FRSR40 FRSR40F	FRSW50 FRSW50F
Zimmer					
Type	Mode	Mini Ø3.7	Regular Ø4.1	Wide Ø4.7	Ultra-Wide Ø6.0
Tapered	Normal Fracture	FRSMZ37 FRSMZ37F	FRSRZ41 FRSRZ41F	FRSWZ47 FRSWZ47F	FRSWZ60 FRSWZ47F

Screw Driver

- Connects and fastens the Remover Screw to the implant
- Recommended tightening torque : regular/wide 100Ncm, mini 80Ncm

F	Mini	Regular	Wide
	FRSDM23	FRSDR25	FRSDW30



Remover Body

- Connects to the Remover Screw to apply torque to remove the implant
- Select the correct type that matches the diameter of the implant to be removed
- ※ Disposable; do not re-use

F	Mini	Regular	Wide (for Hiossen)	Wide (for other brands)	Ultra-Wide
Short	FRBM35S	FRBR40S	FRBW50S	FRBW57S	FRBUW60S
Long	FRBM35L	FRBR40L	FRBW50L	FRBW57L	FRBUW60L



Torque Extension

- Extends the length of the screw driver and remover body (by 10mm)

OTE



Torque Wrench

- Tightens Screw Driver and removes the implant using the Remover Body
- Applies up to 400Ncm of torque (markers at 80/100/200/300/400Ncm)
- Torque by pulling the bar back until it reaches the desired torque value marking
- Clean and sterilize for storage

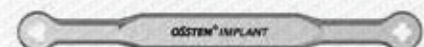
TW400B

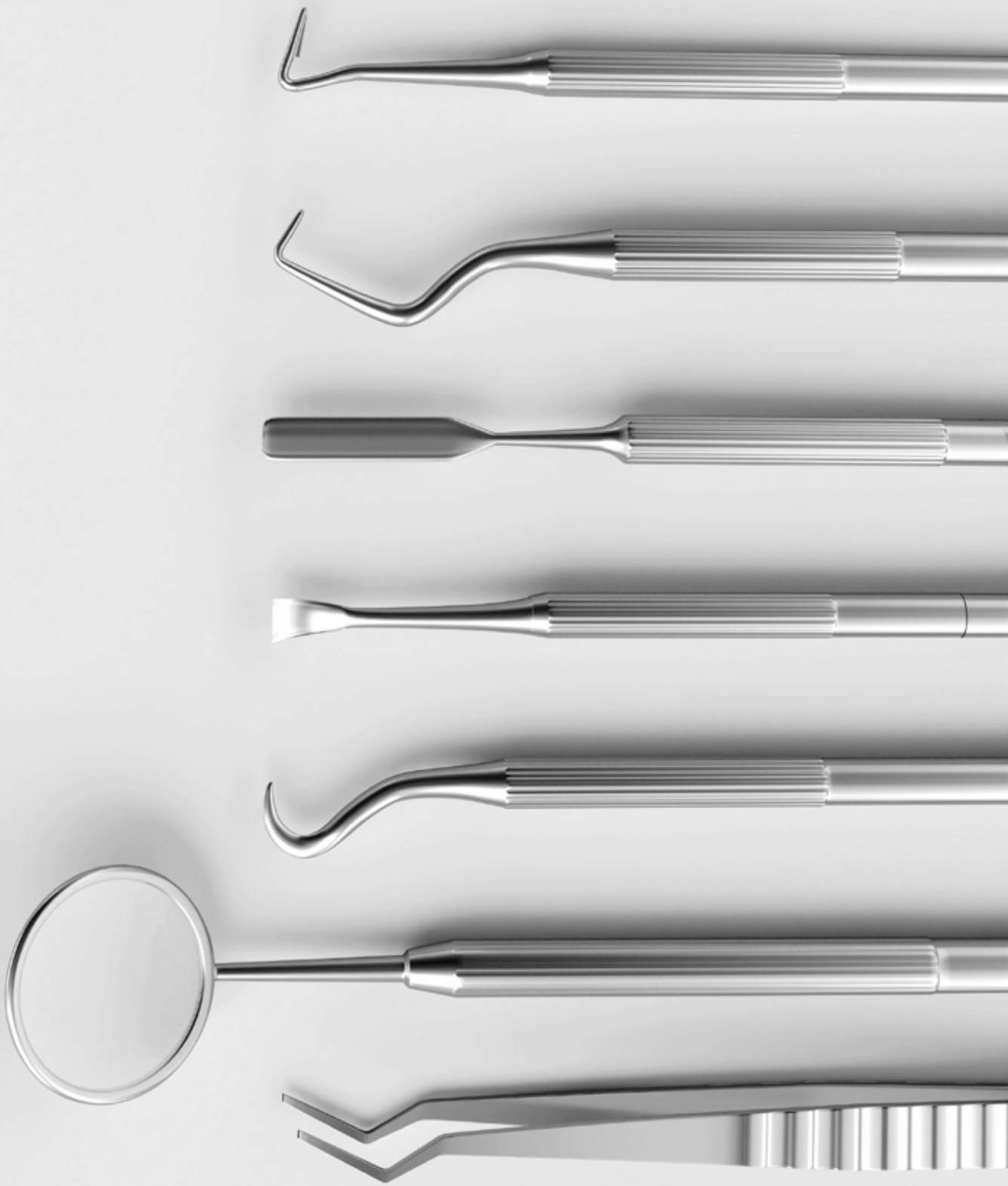


Implant Wrench

- Wrench used to separate the implant from the Remover Body

FRDFE





Kit & Tools Maintenance Tips



1. Saline/Distilled Water

Put the used tools in saline or distilled water after the surgery.



2. Alcohol washing

Immerse and wash all the used and unused tools in the kit with alcohol.

When tools mounted in rubber are kept as they are for an extended period, the tools may corrode due to the moisture generated during the sterilization process. Therefore, unused tools should be washed as well, at least once every 3 months.

Precaution: Hydrogen peroxide should not be used. Laser marking(s) or discoloration of anodized material may occur in case of exposure to hydrogen peroxide.



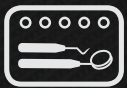
3. Washing with running water

Rinse thoroughly with distilled water or running water to get rid of blood stains or any remaining substances.



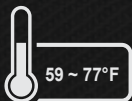
4. Drying

It is important to make sure that all the tools are absent of moisture to prevent future rusting. Use a dry cloth or a fan heater.



5. Mounting in the KIT

Mount the dried tools in the KIT cassette. (Refer to the color code for convenience)



6. Keeping Tools at Room Temperature

Autoclave the KIT with the tools mounted (at 270°F | 132°C for 15 minutes) and keep all the tools at room temperature.

NOTE All used tools after the surgery should be disassembled and washed before storage. Re-sterilize the KIT before the surgery to ensure safety. (270°F for 15 minutes). After the kit is opened, it is warranted for one year and the drills are warranted for up to 50 uses.

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270 Sylvan Ave. Ste 1130, Englewood Cliffs, NJ 07632
Marketing@hiossen.com | 888.678.0001 | www.hiossen.com

 @hiossen_implants  @HiossenImplants  @Hiossen

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