

SR Kit-II
USER GUIDE

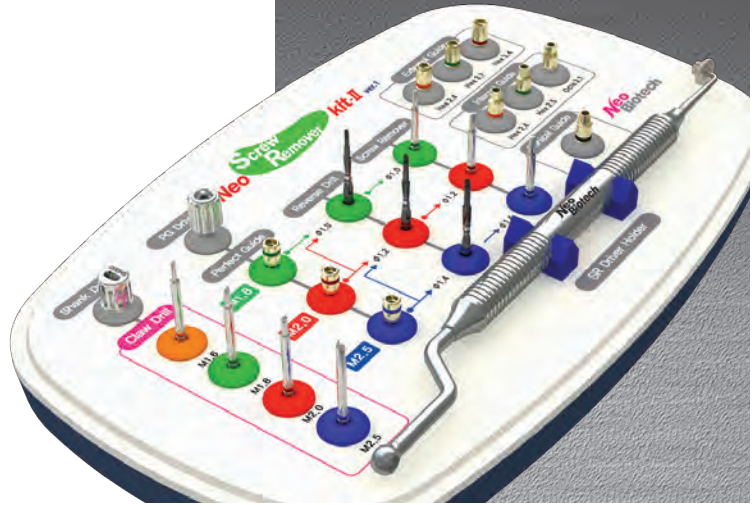
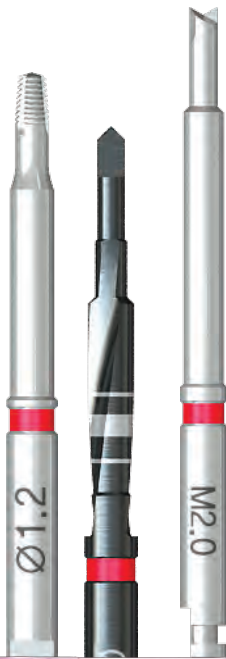


NeoBiotech

Neobiotech Co., Ltd. www.neobiotech.co.kr
E-Space #1010, 2112-26 Guro-dong, Guro-gu, Seoul, Korea 152-789
Tel. 1577-2885 Fax 02-582-2883

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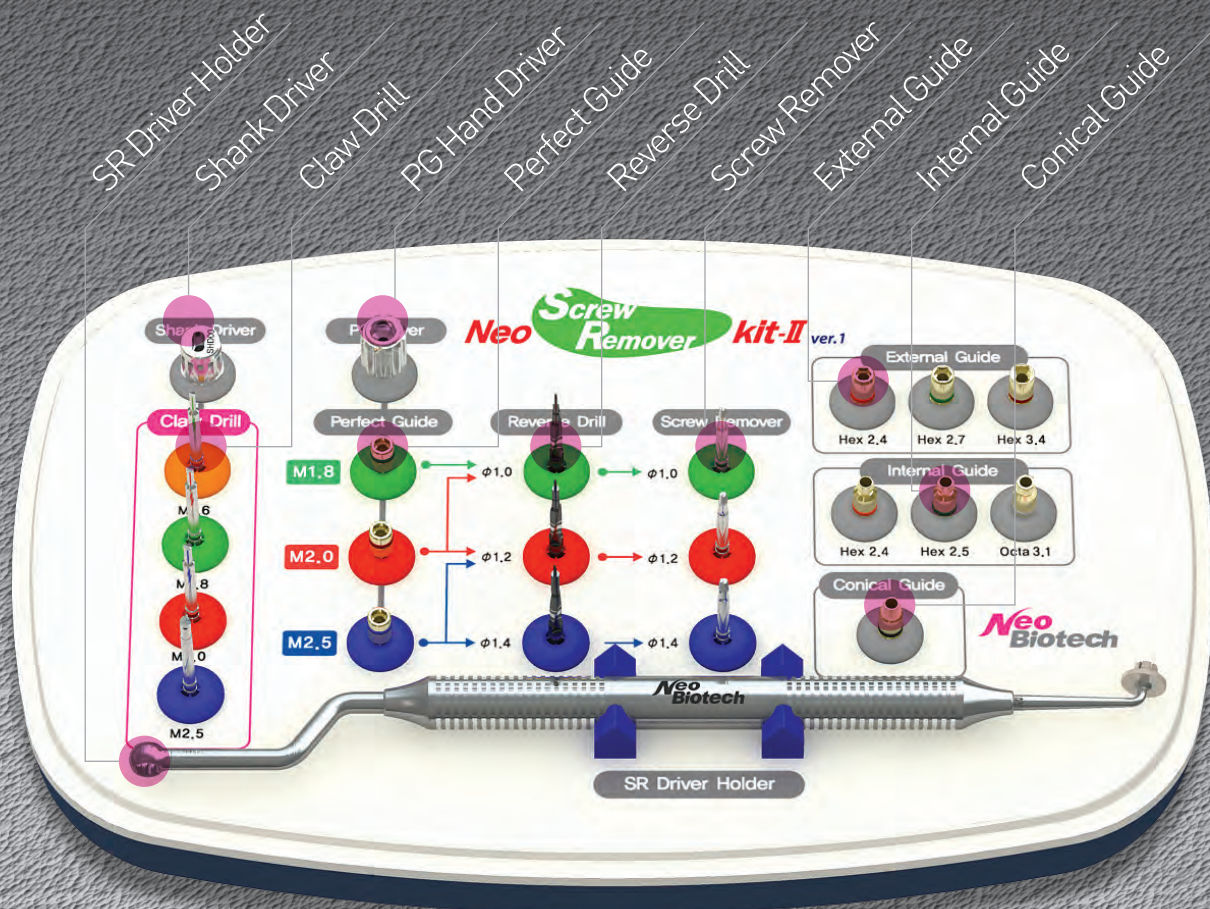
SR Kit-II

USER GUIDE

Neo Screw Remover kit-II ver.1

Product Code : SRKIT2

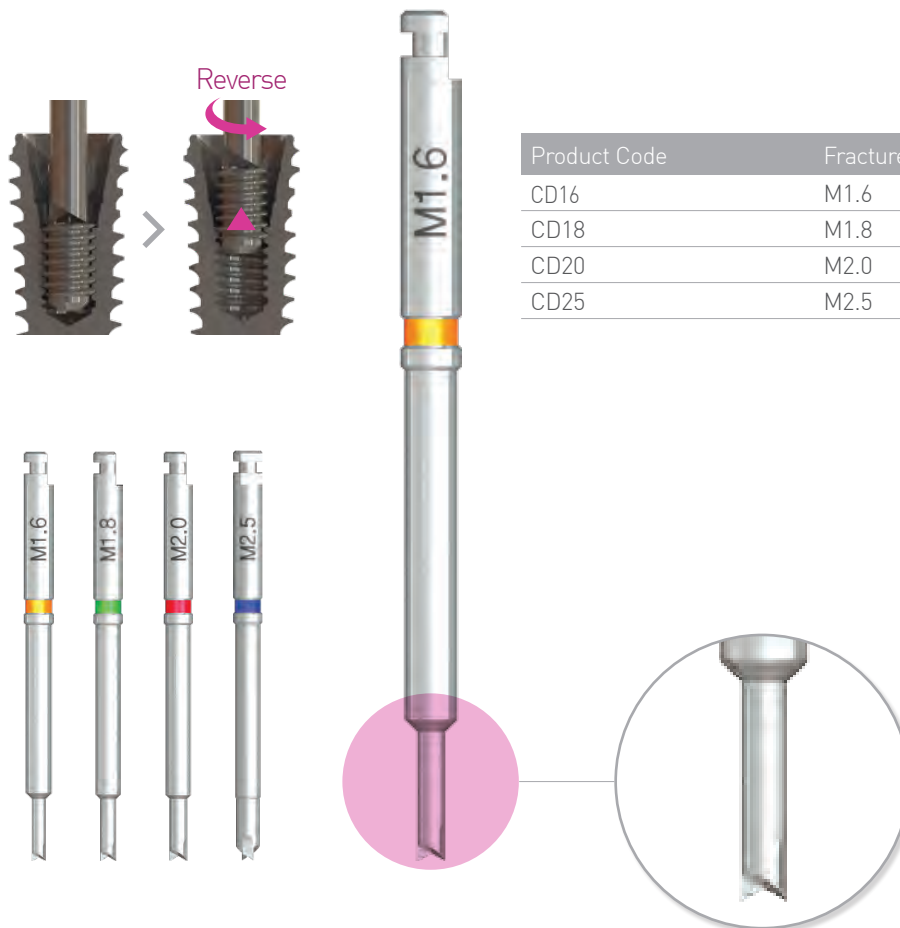
Neo Screw Remover kit is composed of tools designed to remove the fractured screw safely and quickly when the screw fracture has occurred inside the fixture due to various reasons.



Claw Drill

Claw drill is a proper tool that can be used first to remove the fractured screw inside the fixture. Choose the claw drill that fits the size of the screw that is going to be removed, then connect the claw drill to the contra angle and rotate it reverse side (50RPM) to remove the fractured screw.

When claw drill does not work, drill the screw with the reverse drill and then use remover in order to remove the fractured screw.

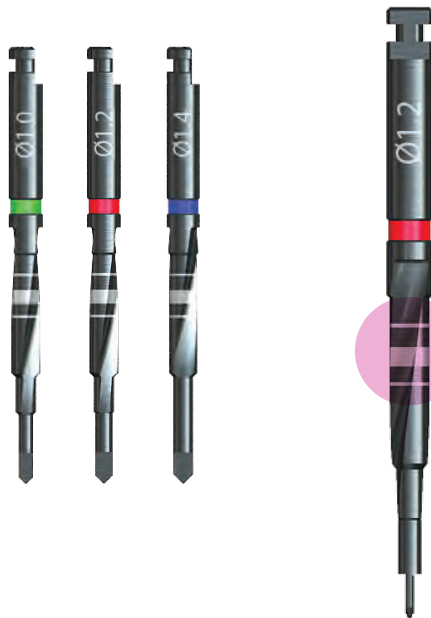


Reverse Drill

This is an instrument to form the hole for screw remover to insert on the fractured screw before using a screw remover which has the function to remove the screw.

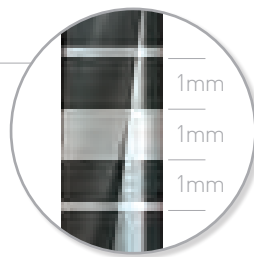
According to edge diameter, it is consisted of 4 types and selects a reverse drill suitable for the size of screw desired to remove.

The marks on the body enables to adjust the drilling the drilling depth 1mm~3mm as it is marked



Product Code	Diameter(Ø)	Fractured screw size
RCD10	Ø1.0	M1.8
RCD12	Ø1.2	M2.0
RCD14	Ø1.4	M2.5

For M1.6 Size screw, use the claw drill for removal.



* 2,000 RPM

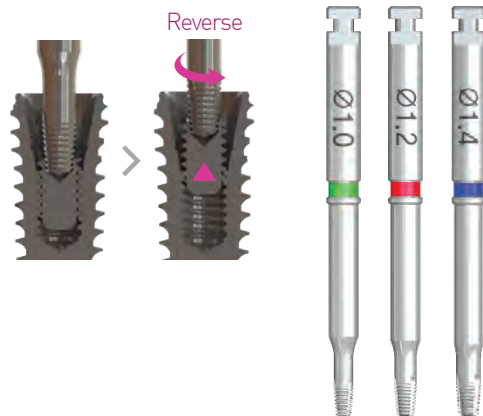
INFORMATION

Abutment Screw standard is different according to the manufacturer but generally, except for special case, the screws of M1.6, M1.8, M2.0, M2.5 are used. ("M" means the meter screw and the number means the diameter of screw. For example, "M1.6 screw" means the meter screw with screw diameter 1.6mm)

Screw Remover

This is an instrument to remove the fractured screw by inserting the screw remover suitable for the hole formed by a reverse drill and turning counterclockwise at less than 80 RPM.

Screw Remover is designed with the taper structure so that the more it turns the more the friction force required to loosen increases.



Product Code	Diameter(ø)	Fractured screw size
SR10	ø1.0	M1.8
SR12	ø1.2	M2.0
SR14	ø1.4	M2.5

Shank Driver

This is an instrument designed to use by hand or torque wrench or ratchet by attaching the screw remover to this instrument.



Product Code	Standard	Applicable products
SHD00	for hand or ratchet	Screw Remover (SR10, SR12, SR14)

Perfect Guide & PG Hand Driver

Perfect Guide plays a role of the guide of Reverse Drill and is used when the screw is fractured downward female screw inside the fixture, and is used by attaching directly to the fixture female screw using a PG Driver. As there is a specially designed bump which enables to push the fractured screw together by turning it when attaching a Perfect Guide, the guide can be attached perfect. Perfect Guide, a drill stop is designed to avoid drilling more than 2mm. As this is attached directly to the Fixture for use, the tool to fix the guide is not needed when drilling.



Perfect Guide

Product Code	Diameter[ø]	Fractured screw size	Applicable reverse drill
PG1018	ø1.0	M1.8	RCD10
PG1220	ø1.2	M1.8, M2.0	RCD10, RCD12
PG1425	ø1.4	M2.0, M2.5	RCD12, RCD14

PG Hand Driver

Product Code	Standard	Applicable products
PGHD25S	2.5Hex	Screw Remover (PG1018, PG1220, PG1425)

INFORMATION

Be sure to use the same size of Perfect Guide as fixture female screw.

Conical, Internal & External Guide

Like Perfect Guide, these instruments play a role of the guide of Reverse Drill and are used when a Perfect Guide can not be used, or when the screw is fractured in the deep area downward more than 2mm in the beginning of female screw inside the fixture, and select the proper guide to use according to the internal connection .



Conical Guide

Product Code	Standard	Applicable fixture
CG00	11°/8°	Having 11°/8° internal connection Fixture

Internal Guide

Product Code	Standard	Applicable fixture
IHG24	2.4Hex	Having 2.4 hex external connection Fixture
IHG25	2.5Hex	Having 2.5 hex external connection Fixture
IOG31	3.1Octa	Having 3.1 Octaexternal connection Fixture

External Guide

Product Code	Standard	Applicable fixture
EHG24	2.4Hex	Having 2.4 hex external connection Fixture
EHG27	2.7Hex	Having 2.7 hex external connection Fixture
EHG34	3.4Hex	Having 3.4 hex external connection fixture

SR Driver Holder

This is an instrument to hold by hand and fix the Internal Guide, External Guide and Conical Guide which play a role of the guide when using a Reverse Drill, after attaching them to this instrument.



Product Code	Standard	Applicable products
SRDH01	3.5Double Hex	Conical Guide : CG00 Internal Guide : IHG24, IHG25, IOG31 External guide : EHG24, EHG27, EHG34
	Swivel hole	PG Hand Driver

INFORMATION

In case of impossible use of Perfect Guide situation, use Guide Holder with Conical, Internal, and External Guide.

Usage

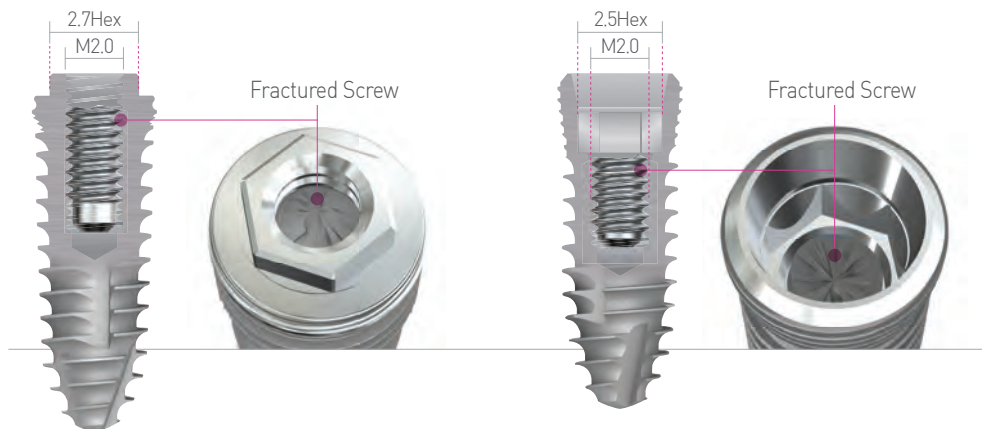
1 Sterilization

Sterilize the desired components to use only or sterilize the whole kit that the components are inserted.

2 Find standard size for Fixture & Screw

Check the size of fixture connection or the desired fractured screw to remove or the female screw inside the fixture.

If you don't know the size of fixture connection, the fractured screw, the female screw or fixture, make sure to ask the manufacturer or agent for information.



Fixture connection

External : 2.4Hex, 2.7Hex, 3.3Hex, 3.4Hex
Internal : 2.4Hex, 2.5Hex, 3.1Octa

Screw Standard

In general M1.6, M1.8, M2.0, M2.5 are mostly fitted

3 Guide for selection & connection

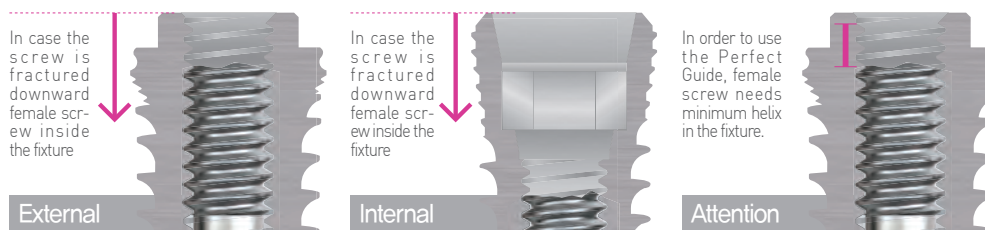
Select the suitable guide for Fixture connection and screw size and attach it to the fixture.

Usage of Perfect guide.

Use a PG Driver to attach the Perfect Guide which corresponds to the size of female screw of fixture to the female screw of the fixture. Attach it with about 15Ncm which is a torque enough to tighten by the hand force.

Usage of External, conical, internal guide.

When there is a situation which cannot use Perfect Guide or abutment screw has been fractured more than 2mm, select one proper guide among External Guide, Conical Guide, and Internal Guide and install the selected guide on the Guide Holder and then attach it to the fixture.



INFORMATION

To reduce the mistake to attach the Perfect Guide which has different size with that of female screw of Fixture, attach the Perfect Guide with a bigger diameter first and if not fitted, try to attach the smaller Perfect Guide.

Usage

4 Usage of Reverse Drill

Select suitable Reverse Drill to the size of screw desired to remove and attach it to the contra angle of surgical engine and then insert it in the Guide installed in the fixture and turn it counterclockwise at 1,200 RPM~1,300 RPM to form 1~2mm hole on the fractured screw. As the heat may generate by drilling, the sufficient irrigation is needed.

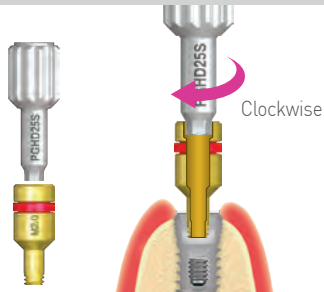
5 Usage of Screw Remover

After removing the connected guide, choose the screw remover that fits the hole size which is made with the reverse drill, connect it with the contra angle of the surgical engine, press the screw remover with the sufficient force and unscrew it in the reverse side (Max 80 RPM). When the screw remover is connected to the shank drive, the fractured screw could be removed by hand or with the connection of ratchet or torque wrench. Especially, when the torque of the surgical engine is weak to remove the screw, you may use the ratchet to remove the screw.

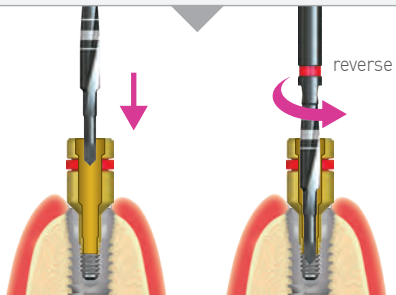
INFORMATION

The drill stop is designed inside the Perfect Guide, therefore it cannot be drilled over 2mm. However External Guide, Conical Guide, Internal Guide has no drill stop like Perfect Guide. When drilling, you need to check the marking line for getting the information of the drilling depth of the reverse drill. (Marking line : 1mm)

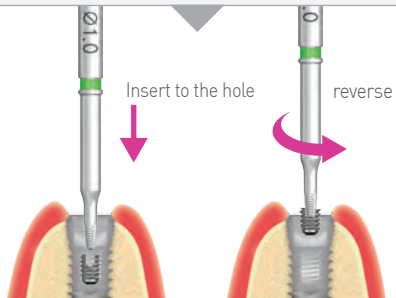
Perfect Guide



Connect PG Driver to Perfect Guide before connecting Perfect Guide to the fixture.

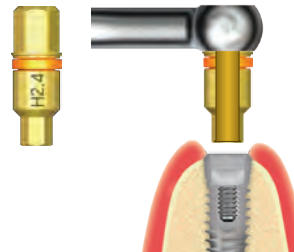


As a drill stop is designed inside Perfect Guide, the drilling more than 2mm is not possible. However, for External Guide, Conical Guide and Internal Guide, a drill stop is not designed other than Perfect Guide. Thus, when drilling, be sure to check the strip marking which indicates the drilling depth of Reverse Drill.

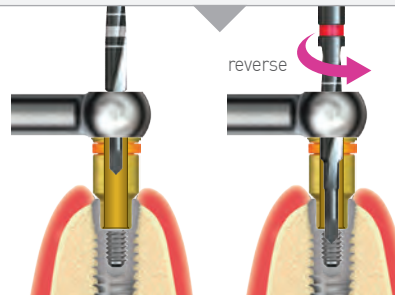


Remove the Guide with the drill, the insert a suitable Screw Remover to the hole and remove the fractured screw by rotating counterclockwise.

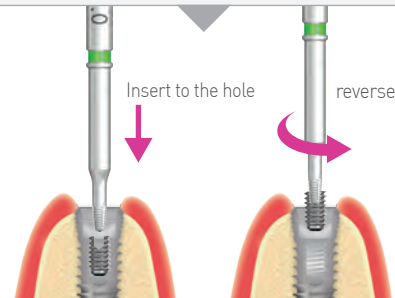
External, Internal, Conical Guide



Install the selected guide on the Guide Holder and then attach it to the fixture by hand. (The holder should stay firm with the perfect connection of the holder and Guide hex)

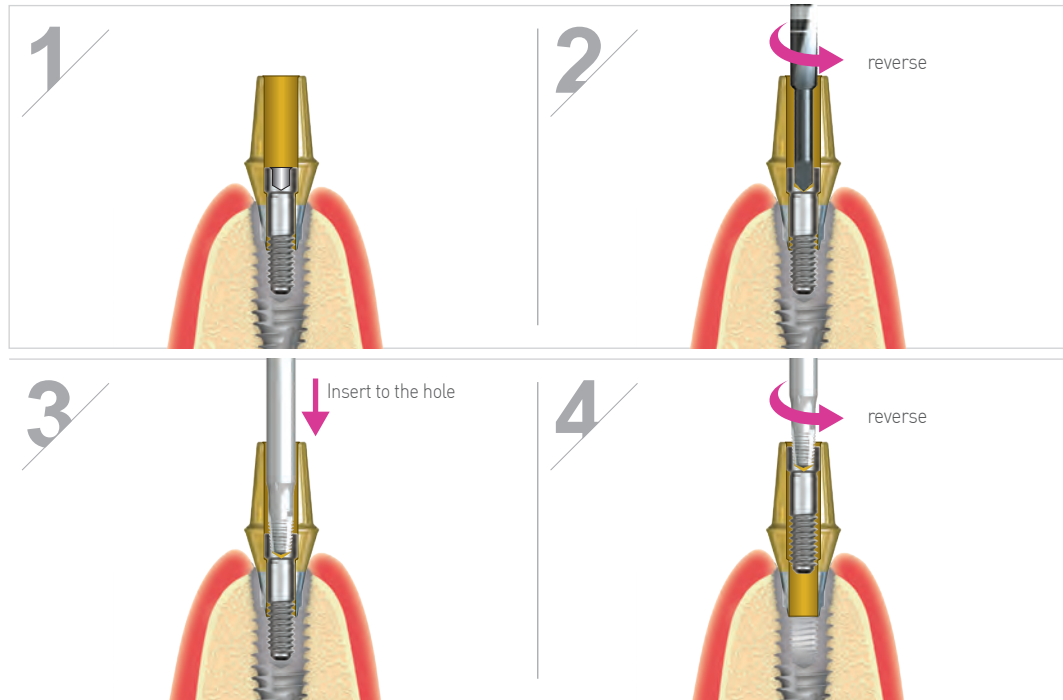


In order to make 1-2mm hole of fractured screw, it needs to insert Reverse drill to the Guide and drill counterclockwise with irrigation.(2,000 RPM) Do not connect the Guide while the drill is rotating. You must drill when Reverse drill touches the surface of the screw.



Remove the Guide with the drill, the insert a suitable Screw Remover to the hole and remove the fractured screw by rotating counterclockwise.

In case of broken hex of Abutment screw



When there is over torque by combining the Fixture and the abutment, hex of the screw head can be distorted. On this case, using screw remover kit, screw of abutment can be easily removed. In most implant systems, 1.2 hex screw is used and when the hex is distorted, you must follow the procedures below.

1. For the use of Reverse Drill

Contact the $\varnothing 1.4$ Reverse Drill (Product code: RCD14) to the distorted hex part, and make a hole with the original hex depth (1-1.5mm) by drilling reversely at 2,000 ~ 4,000 RPM. In some cases, the screw can be removed with only reverse drill.

2. For the use of screw remover

Insert $\varnothing 1.4$ screw remover (Product code : SR14) into the hole and drill counterclockwise by below 80 RPM to remove the screw.

Cautions

Read the purpose of the product and how to use thoroughly before using.

If you select a tool wrong, the fixture may be damaged. So, after checking the size of screw desired to remove or fixture connection, select the proper Guide, Reverse Drill, and Reverse Tap to use.

If Perfect Guide is not attached well, do not force to attach it but select the proper guide suitable for the fixture connection among External Guide, Conical Guide, and Internal Guide. If you force to attach the Perfect Guide, the fixture may be damaged. (Suggested torque = 15Ncm)

For the External Guide, drill when the holder stays firm with the perfect connection of the holder and hex.

After connecting External Guide, be careful when drilling since the screws can be loosen due to reverse drilling.

Reverse Drill and Screw Remover should be used at optimal RPM. (Reverse drill=2,000 RPM / Remover = Max 80 RPM)








If the used tool is left alone, it may cause the rust or corrosion. Make sure to dry thoroughly after washing and store it in the dry place at ambient temperature.

Reverse drill is disposable and you may not reuse.

SCREW REMOVAL SEQUENCE









Perfect Guide



Removal screw size	M1.8 screw	M2.0 screw (Method1)	M2.0 screw (Method2)
Step 1 Perfect Guide selection			
Product name	PG1018	PG1220	PG1220
Standard	M1.8	M2.0	M2.0
Step 2 Reverse Drill			
Product name	RCD10	RCD10	RCD12
Standard	∅1.0	∅1.0	∅1.2
Step 3 Screw Remover			
Product name	SR10	SR10	SR12
Standard	∅1.0~∅1.3	∅1.0~∅1.3	∅1.2~∅1.5

INFORMATION

When you use the Perfect Guide, in case of M2.0 and M2.5, you can remove the fractured screw by sequence of method1 and 2.

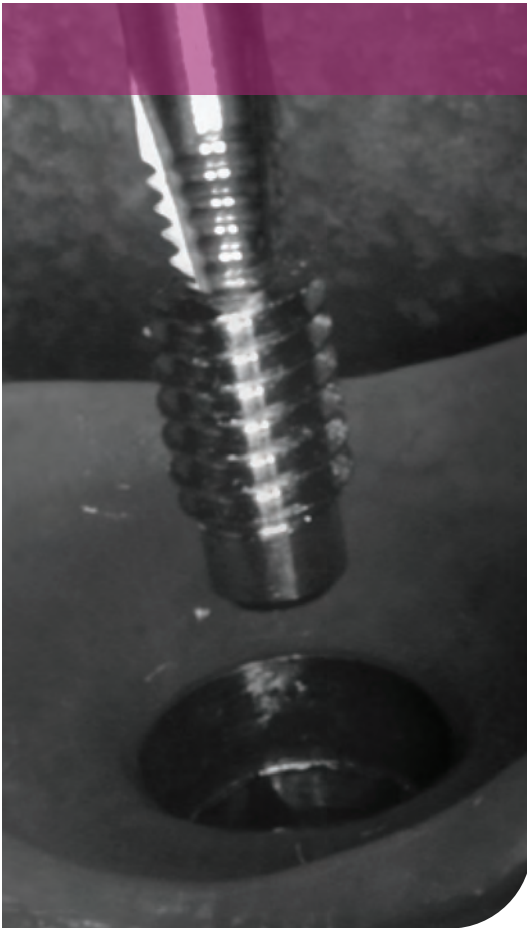
Removal screw size	M2.5 screw (Method1)	M2.5 screw (Method2)	Usage
Step 1 Perfect Guide selection			Pick up the perfect guide that fits the size of the fixture female with PG Hand Driver and connect the PG Hand Driver to the fixture with hand by turning the PG Hand Driver.(Torque : About 10Ncm)
Product name	PG1425	PG1425	 Product name : PG Hand Driver Standard : 2.5Hex
Standard	M2.5	M2.5	
Step 2 Reverse Drill			After removing the attached guide, select the Screw Remover suitable for the hole formed by a Reverse Drill and attach it to the contra angle of surgical engine and then press the Screw Remover on the formed hole with the proper force and turn it less than 80 RPM to loosen the screw.
Product name	RCD12	RCD14	After removing the attached guide, select the Screw Remover suitable for the hole formed by a Reverse Drill and attach it to the contra angle of surgical engine and then press the Screw Remover on the formed hole with the proper force and turn it counterclockwise less than 80rpm to loosen the screw. If a Screw Remover is attached to Shank Driver, it is available to loosen the fractured screw by hand or by connecting a Ratchet or Torque Wrench.
Standard	ø1.2	ø1.4	
Step 3 Screw Remover			 Product name : Shank Driver Standard : for hand or ratchet
Product name	SR12	SR14	
Standard	ø1.2~ø1.5	ø1.4~ø1.7	

INFORMATION

In case of removing M2.0 and M2.5 size crew, if you fail to remove the screw by sequence of the method1, you can have one more chance removing the screw by sequence of the method2.

SCREW REMOVAL SEQUENCE

External, Internal, Conical Guide



Removal
screw size

M1.8 screw

M2.0 screw
(Method1)

M2.0 screw
(Method2)

Step 1
Guide
selection



Conical
Guide



Internal
Guide



External
Guide

Step 2
Reverse
Drill



RCD10

Standard
ø1.0



RCD10

Standard
ø1.0



RCD12

Standard
ø1.2

Step 3
Screw
Remover



SR10

Standard
ø1.0~ø1.3



SR10

Standard
ø1.0~ø1.3










SR12

Standard
ø1.2~ø1.5

INFORMATION

For internal fixture, you may use internal guide or conical guide that is appropriate for the different cases.

Removal screw size	M2.5 screw (Method1)	M2.5 screw (Method2)	Usage
Step 1 Guide selection	 Conical Guide	 Internal Guide	<p>According to the fixture connection, choose the proper guide between External, Internal, Conical Guide, connect it to the Guide Holder and then connect to the fixture.</p>
Step 2 Reverse Drill	 RCD12 Standard: $\varnothing 1.2$	 RCD14 Standard: $\varnothing 1.4$	<p>Connect the Reverse Drill with the contra angle of surgical engine and then insert it in the Perfect Guide installed in the fixture and turn it at 1,200~1,300 RPM to form the 1~2mm hole on the fractured screw.</p>
Step 3 Screw Remover	 SR12 Standard: $\varnothing 1.2 \sim \varnothing 1.5$	 SR14 Standard: $\varnothing 1.4 \sim \varnothing 1.7$	<p>After removing the attached guide, select the Screw Remover suitable for the hole formed by a Reverse Drill and attach it to the contra angle of surgical engine and then press the Screw Remover on the formed hole with the proper force and turn it counterclockwise less than 80rpm to loosen the screw. If a Screw Remover is attached to Shank Driver, it is available to loosen the fractured screw by hand or by connecting a Ratchet or Torque Wrench.</p>
Product name Standard			 Product name : Shank Driver Standard : for hand or ratchet



SR Driver Holder

INFORMATION

In case of removing M2.0 and M2.5 size crew, if you fail to remove the screw by sequence of the method1, you can have one more chance removing the screw by sequence of the method2.

Cleaning

Drill and Instrument

If possible, separate all combined components and wash them for 2 min 30 secs in cold or warm water. Use syringe or pipe cleaner for cleaning where it is difficult to be washed. According to the manufacturer's guidelines, dilute the enzyme cleaners with tap water and clean with the tap water for 3 minutes after conducting ultrasonic cleaning for 10 minutes.

Kit

Remove all the instruments from the tray and separate the tray. Clean all instruments and drills according to the procedure listed above. Clean all the debris on the tray in the running water and remove the left debris using a soft brush. Use syringe or pipe cleaner for cleaning where it is difficult to be washed. After cleaning according to the manufacturer's guidelines steep them in the diluted enzyme cleaners at least 1 minute. After that, use a soft brush to remove the left debris. Wash them in warm running water at least 3 minutes to remove the left enzyme cleaners and dry them. Combine all components and sterilize according to the proper sterilization process.

All instruments that have contacted the tray during the surgery should be sterilized following this procedure.

Sterilization

For the plastic material products, sterilization should not be done over 170 °C (338 °F). Before sterilization, remove the inner packing materials from the tray and separate all combined components in order to enhance the efficiency of sterilization. Cover the tray with surgical drape and seal with autoclave tape.

Recommended steam sterilization conditions

	Cycle Type	Temperature	³ Pressure	Exposure Time	Dry Time
Kit	Prevacuum ^{1,2}	132°C	2 bars	3mins	30mins
		270°F	28.5 psi		
	Gravity ¹	121°C	1 bars	40mins	30mins
		250°F	14.5 psi		
Instrument	Prevacuum ^{1,2}	132°C	2 bars	3mins	30mins
		270°F	28.5 psi		
	Gravity ¹	121°C	1 bars	40mins	30mins
		250°F	14.5 psi		

To guarantee the effective sterilization of high-pressure steam sterilization, you need to consider the use of biological indicator periodically. Dry heat sterilization or chemical sterilization is not recommended.

1. 10⁻⁶ defines the minimum time and temperature of steam sterilization conditions to guarantee the certain level of sterilization standard.
2. When the sterile conditions of the region or country are higher than those of the conditions listed above, you must follow the conditions.
3. sea level

There might be damages to the plastic component if sterile conditions exceed the sea level. In order not to exceed the suggested temperature, you need to control your sterilizing equipments.