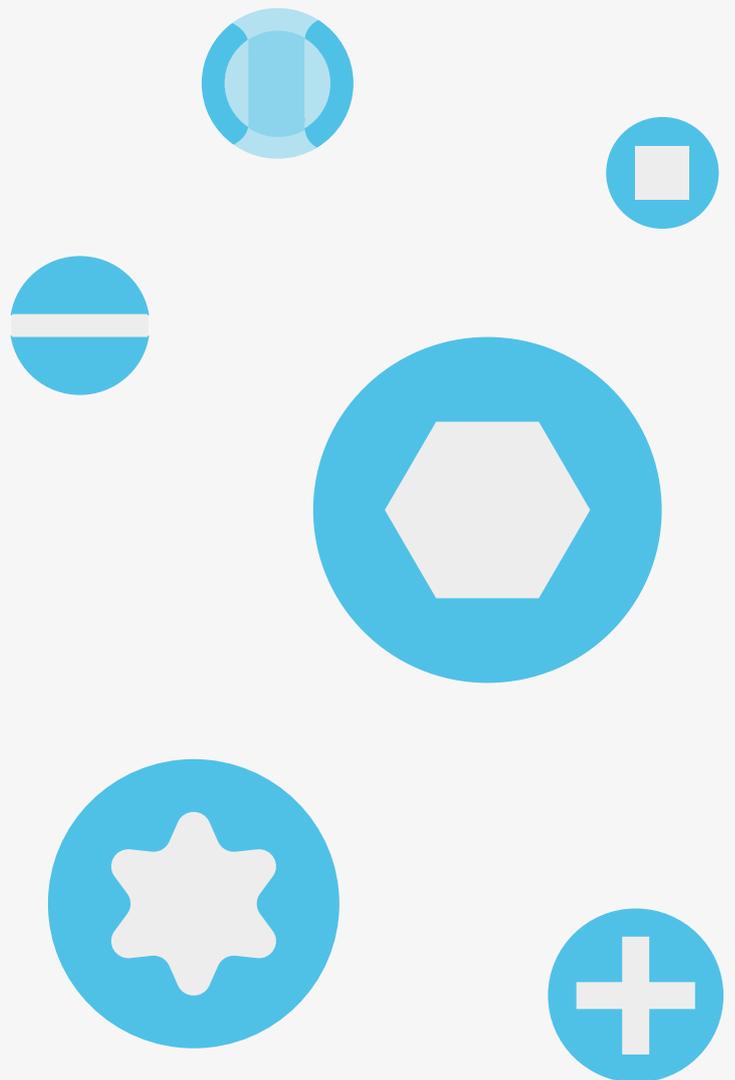


SCREW EXTRACTION SET

51 different instruments for extraction of
damaged or undamaged bone screws.



Index

1 Introductions

3 Usage

- 3 Preparation
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- 4 In the Case of the Screw Recess is Damaged
- 6 In the Case of the Screw Recess is Damaged and Threaded Screwdriver Rotates Freely in Damaged Screw Recess
- 7 In Case of Fractured Head Screw is Partially Outside of the Bone Surface
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11 Set Detail

Warning:

This description is not sufficient by itself for direct and proper use of the instrument set intraoperatively. Instruction by a surgeon who is thoroughly trained and experienced in handling these instruments and in doing the procedure are highly recommended.

Introductions

6 p.d.

In trauma and arthroplasty processes, set is developed to remove the screws in the case of screw breakage, screw head recess, scraping and damages, composing of 51 instruments.

Instruments are designed for the removal processes of all screws as; locked-unlocked, head-headless, cannulated-uncannulated with both titanium and steel materials.

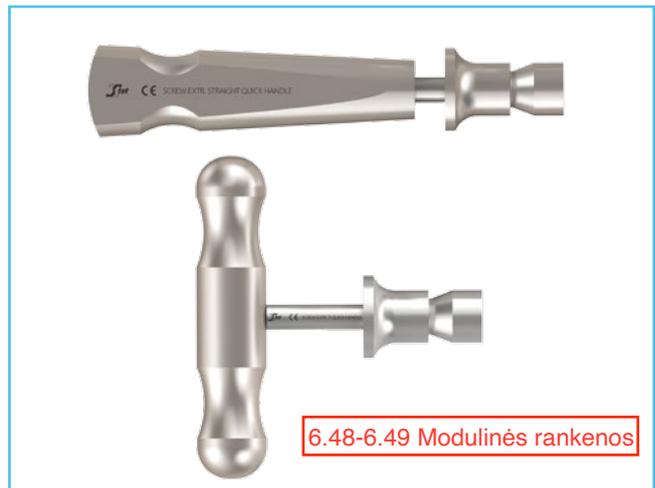
The set contains six different shapes of screwdriver blades including Hexagon, Star, Slot, Cross, Square and T-tipped. This instruments are compatible with screws in different head.



6 p.d.

The set instruments are made of stainless steel material. Tables and set transport containers are suitable for autoclave sterilization.

Instruments can be used with both motor and holders due to quick plug-in properties. Holders are in two different structures; Straight and T-holder.

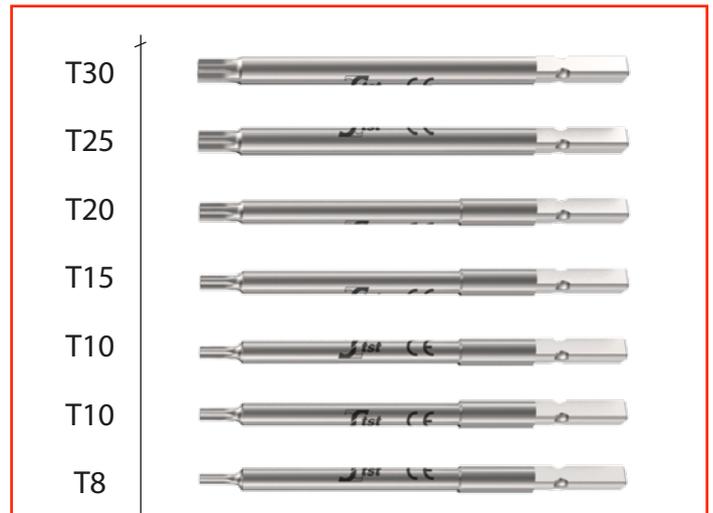


6.48-6.49 Modulinės rankenos



Star tipped instruments have six different sizes as T8, T10, T15, T20, T25 and T30.

6.17-22 Žvaigždutės formos atsuktuvai



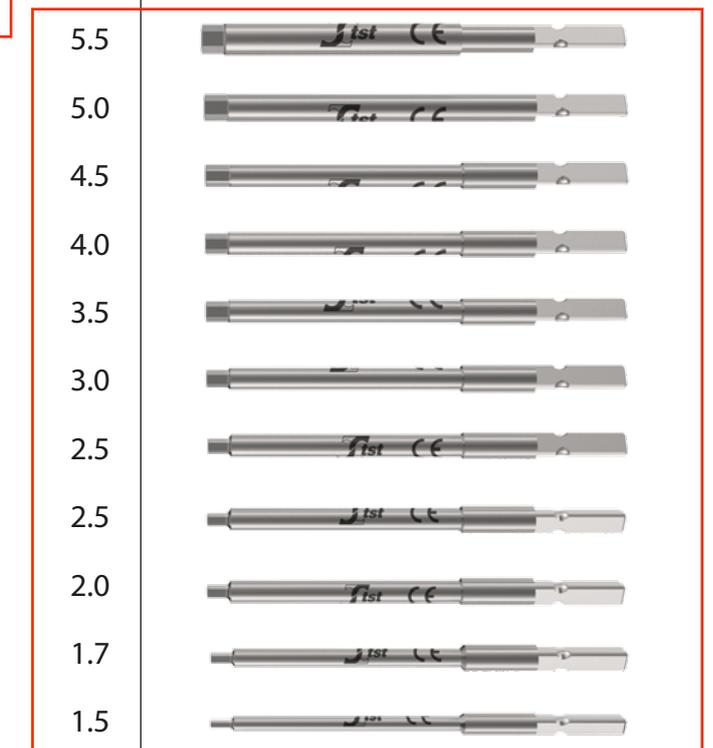
Square tipped instruments have two different sizes, including 1.2 mm and 1.5 mm.

6.24-6.25 Keturkampiai atsuktuvai



Hexagon tipped instruments; have nine different diameters, which are compatible with 1.5, 1.7, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5 mm.

6.27-6.36 Heksagonaliniai atsuktuvai



6.23 Kryžminis atsuktuvas 2 mm

Crosshead-tip instrument has 2 mm tip width.



6.37 Tiesus atsuktuvus, mažas, siaura darbine dalimi

Slot screw driver tips are available in two different options for slotted screw.

6.38 Tiesus atsuktuvus, didelis, plačia darbine dalimi



There is also a T-Pin Extractor in the set, which can be used for extracting pedicle screws, applied in spinal surgery.

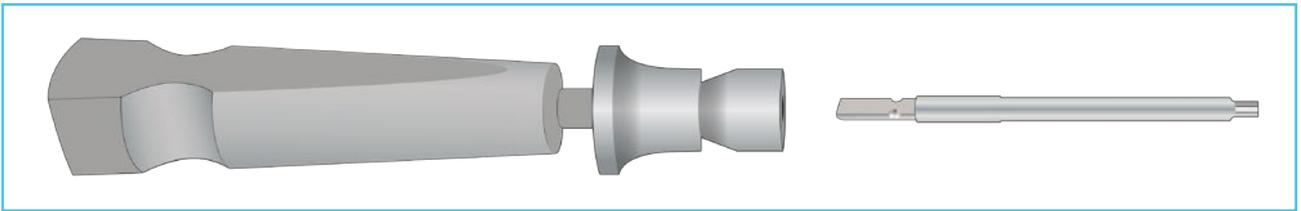
6.26 T-formos atsuktuvus pedikuliniams sraigams



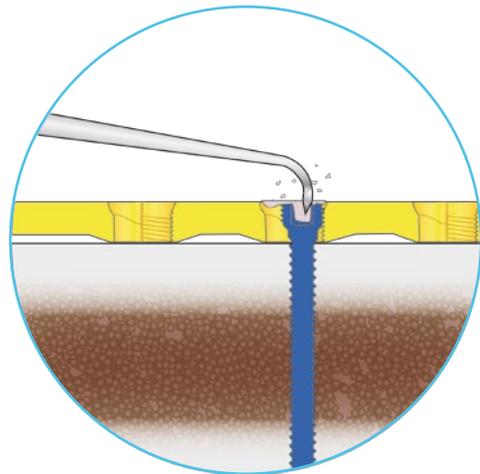
Usage

Preparation

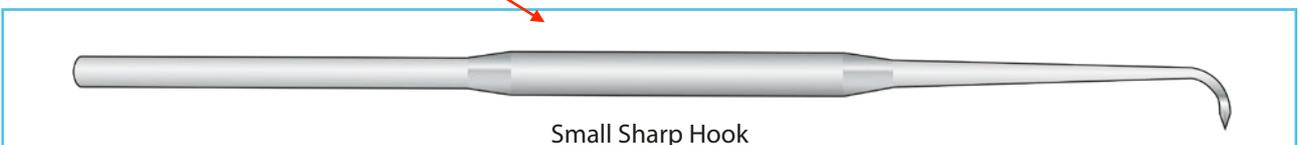
In removal processes, the *Extractor Screw Drivers* and *Quick Handles* are determined by the type and diameter of the screws. The extractor is prepared to use by fitting to holder as in the picture.



Screw head recess is cleaned from ingrown bone scraps and soft tissue remnants with *Sharp Hook* before removing screw. *Screw Extractor Spike Reamer* could be used if the screw is deeper than the bone surface.



6.46 Aštrus lenktas kabliukas

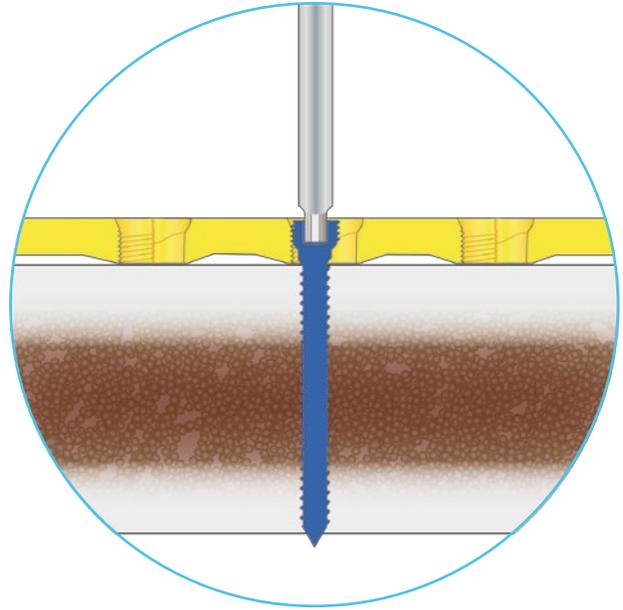


6.16 Ylos formos aštrus grąžtas 5.0 mm

The recess of the exposed screwhead's geometry and it's condition are checked.

In the Case of the Screw Recess is Undamaged;

Insert the *Screwdriver* in all the screw recess. If necessary, lightly tap the *Screwdriver* with a *Hammer*. *Screwdriver* should be inserted on the same axis as the screw. If not, the screw recess or *Screwdriver* can be damaged. The extraction process carried out of counter clockwise.



In the Case of the Screw Recess is Damaged;

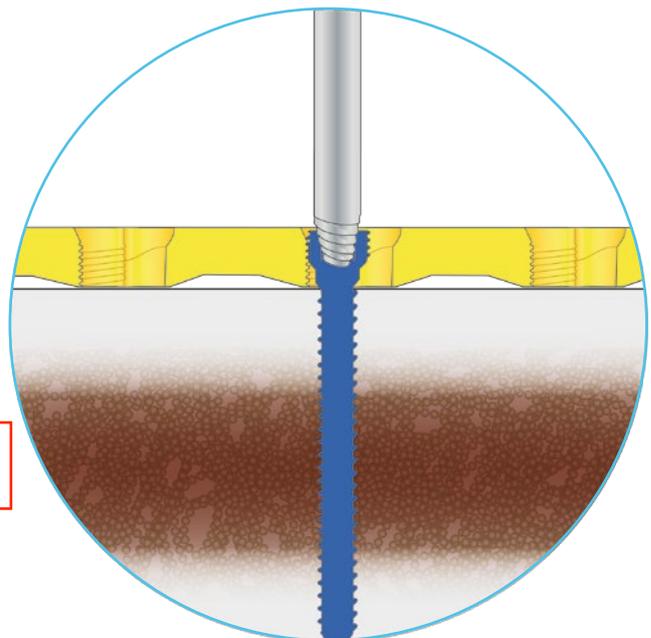
In such cases as, screwdriver tip turns freely in the recess, the *Screw Extractor With Thread* is used to remove the damaged screw recess.

When the *Screw Extractor With Thread* is applied in the counter clockwise direction with special reverse threaded structure, it locks to the screw head and has high gripping and removing ability. There are four different sizes of *Screw Extractor With Inner Thread* suitable for 1.7 mm, 2.5 mm, 3.5 mm and 4 mm screwdriver inserts.

6.7-6.10
Konusinės
formos reversinio
sriegio atsuktuvai

The *Screw Extractor With Thread* has a conical and reverse thread property.

Once the conical tip is completely inserted into the damaged screw recess, then pressed and turned to counter clockwise, it should grasp and begin to remove the screw recess. It should be paid attention to ensure that the extractor is perpendicular (on the same axis) to the screw during the turn and sufficient pressure must be applied on the extractor. This practice should be done manually by applying sufficient sufficient pressure. Motor use is strictly not recommended.





6.7-6.10
Konusinės
formos reversinio
sriegio atsuktuvai

There are four different sizes of the *Threaded Screwdriver* in the set.

Screw Drive	Screw Recess (mm)	Screw Extractor With Thread				Screw Extractor Drill			
		1.7 mm	2.5 mm	3.5 mm	4.0 mm	3.0 mm	5.0 mm	6.0 mm	7.0 mm
	1.5, 2.0, 2.4	█				█			
	T8, T10	█				█			
	1.2, 1.5	█				█			
	2.0	█				█			
	2.7, 3.5, 4.0		█			█	█		
	T15, T20		█			█	█		
	4.5, 5.0, 5.5, 6.0, 6.5			█			█	█	
	T25			█			█	█	
	7.3				█			█	█
	T30				█			█	█

Suitable screwdriver diameter and screw recess shapes that can be used according to the dimensions of threaded screwdrivers on the side table are given. This value could vary indistinctly depending on the degree of damage of the screw head recess.

Table 1

In the Case of the Screw Recess is Damaged and Threaded Screwdriver
Rotates Freely in Damaged Screw Recess;

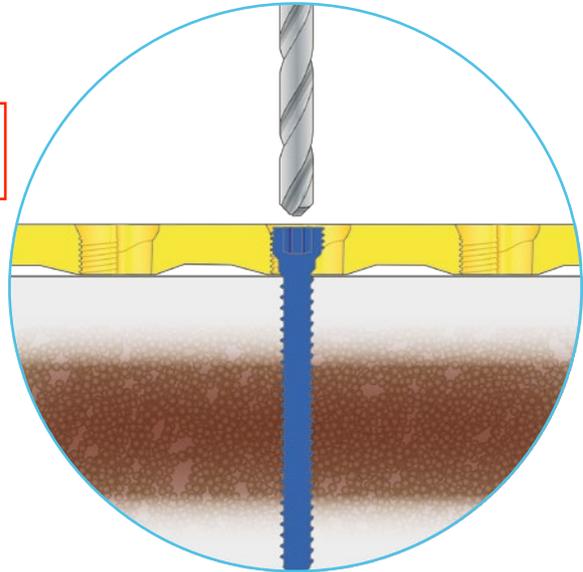
6.39-42 Deimantiniai karbido gražtai

The damaged screw recess is fragmented by carving with an appropriate drill.

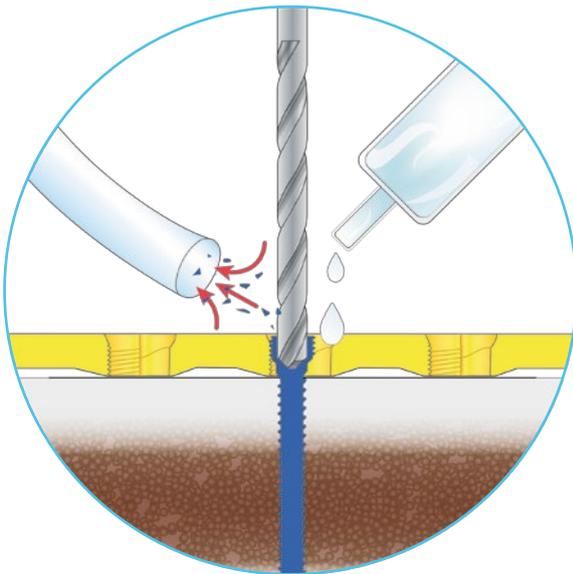
Four different (3, 5, 6, 7 mm) diameters of carbide (diamond) drills are available in the set. They are used for drilling; hard metal materials as titanium and steel.

The head diameter of the damaged screw remaining in the threaded hole of the plate is determined. Then the proper drill is determined and attached to the motor.

Please check Table 1 for the suitable drill selection.



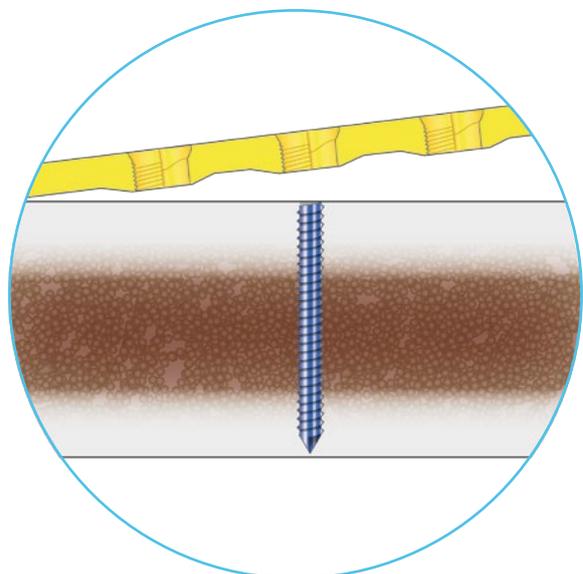
The head of the screw is centered, the head of the screw is carefully carved.



During this process, the metal particles are eliminated by washing and aspiration.

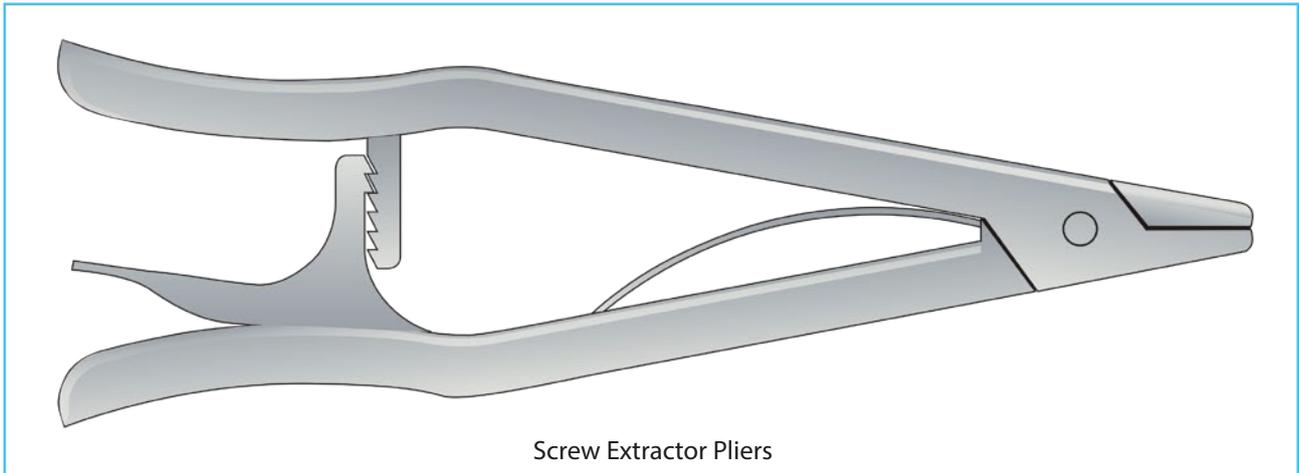
The carving process is continued till the head of the screw is shivered and separated from the body. (The motor must be continued without stopping for an effective engraving operation by applying the same level in sufficient force and as the drill screw axis.) When the screw head is broken the plate is separated from the screw.

Drills are disposable. Used drills must not be used again by reprocessing or sterilization.



In Case of Fractured Head Screw is Partially Outside of the Bone Surface;

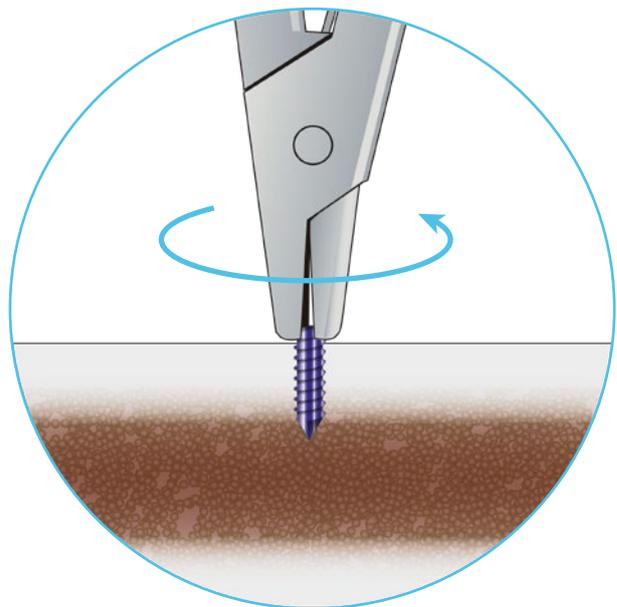
In such cases, the *Screw Extractor Pliers* should be used for the purpose of removing short broken screws.



6.45 Užsifikuojančios replės lūžusių trumpų sraigčių ištraukimui

The screw caught by the *Screw Extractor Pliers* is removed by turning it counterclockwise.

Upward pulling or pushing motion should not be done.

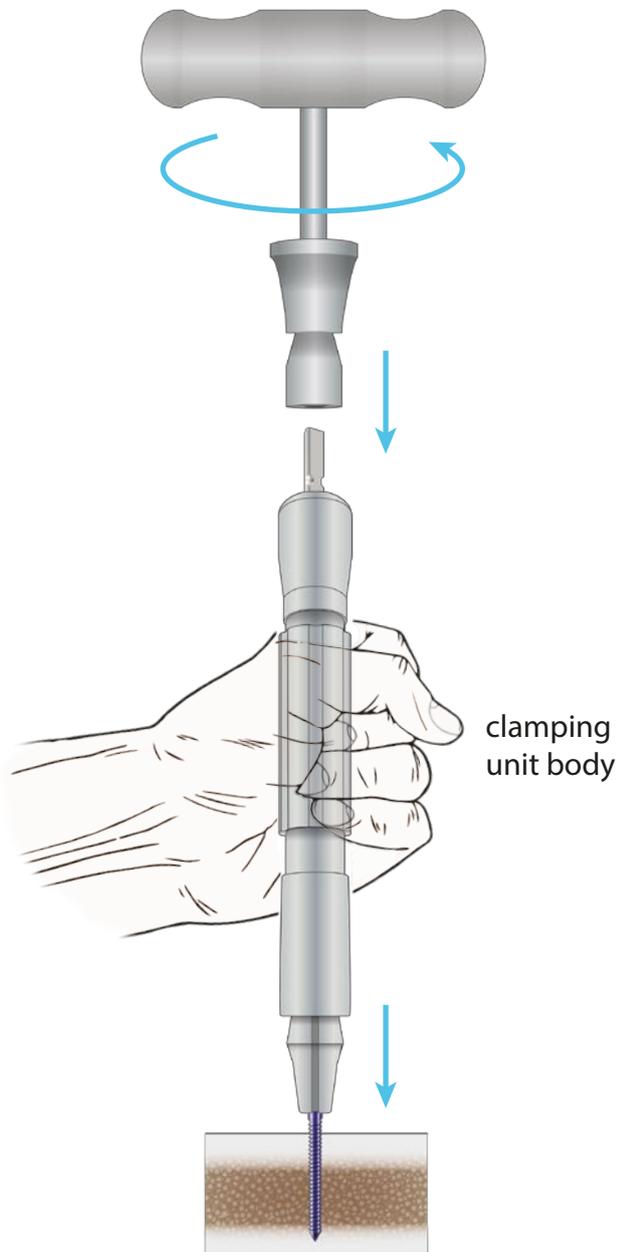


When some part of fractured head long size screw is outside of the bone surface we can use the *Broken Screw Extractor*.

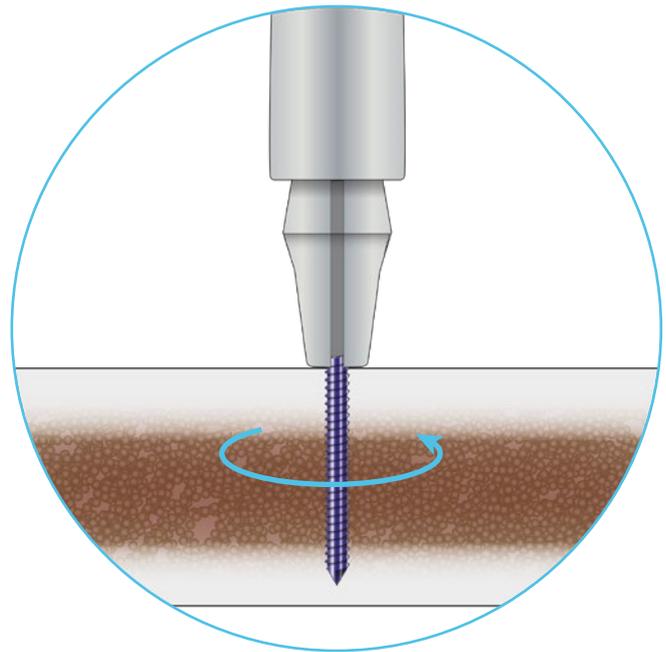
Broken Screw Extractor is available in two different sizes (3.5 mm and 4.5 mm). If the screw diameter 3.5 mm-4.5 mm or less, 3.5 mm *Broken Screw Extractor* is used. If the screw diameter 4.5 mm-5 mm, 4.5 mm *Broken Screw Extractor* is used.

6.43-6.44 Užsifikuojantis spaustukas lūžusių ilgų sraigtų ištraukimui, 3.5 mm ir 4.5 mm

The remover is attached to the *T-Quick Holder* after clamping unit body the *T-Holder* is turned counter clockwise thus the screw is caught by bit of remover.



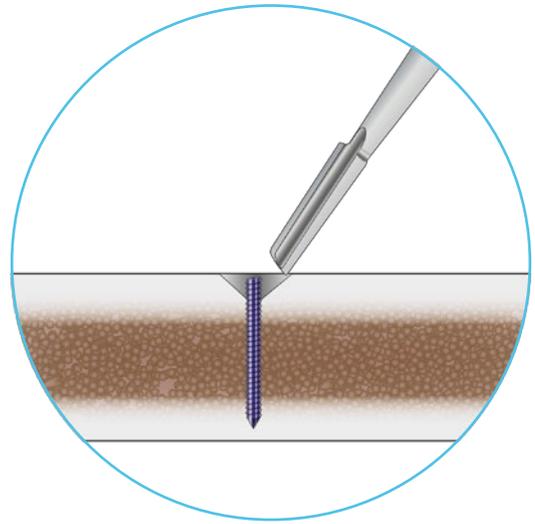
The screw extraction process is completed by turning the *T-Holder* counter clockwise.



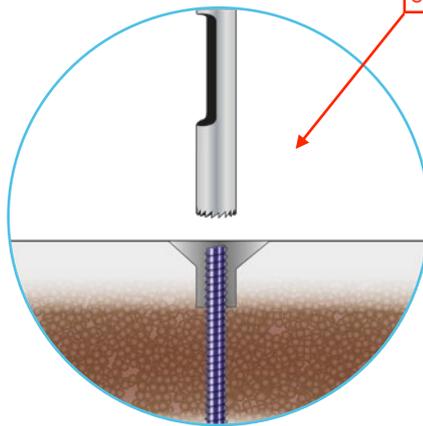
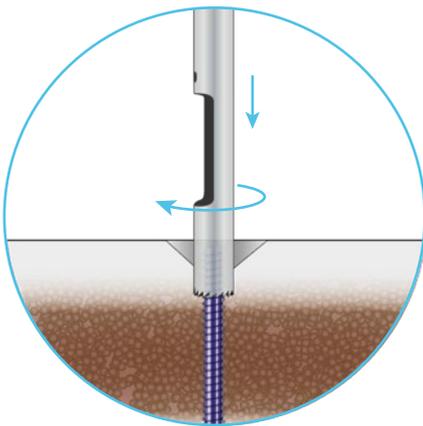
In Case of Fractured Head Screw is Fully Inside the Bone Surface;

A screw centered space is opened by using the *Screw Extractor Bone Gouge*, in order to use the *Hollow Reamer*. (If the screw tip can be grasped by the *Screw Extractor Pliers*, it could be done as well.)

6.47 Kaltukas



6.1-6.6 Tuščiavidurė dantyta freza



Then, through screw by using *Hollow Reamer* which designed as saw tipped, 6 mm depth hole around screw is opened. Process could be applied manually or by using a motor.

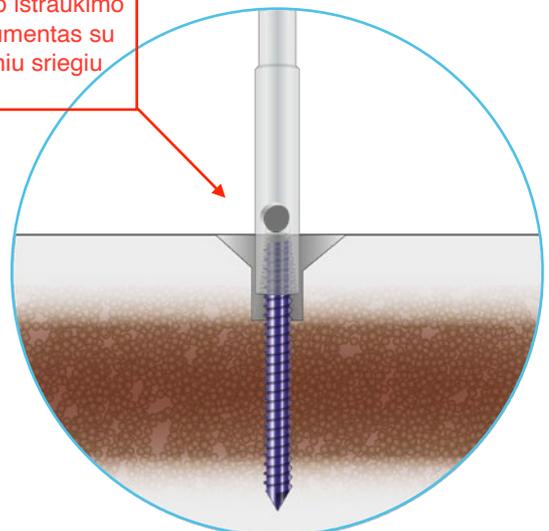
Please see Table 2 for the suitable *Hollow Reamer* selection.

6.11-15 Tuščiaviduris sraigto ištraukimo instrumentas su vidiniu sriegiu

Screw can be hold from threads by making gently pushes on screw with *Inner Thread Screw Extractor*. Conical and *Inner Threaded Extractor* is turned counter clockwise thus a strong gripping is made. In this way extraction is completed

During the extraction process, extractors should be on the same line with the screw axis. Various sizes of *Inner Thread Screw Extractors* are available according to screw body diameter. Different types of *Inner Thread Screw Extractors* are available for 3.5 mm, 4.5 mm, 5 mm, 5.5 mm to 6.5 mm diameter screws.

Please check Table 3 for suitable *Inner Thread Screw Extractor*.



Fluoroscopic control is recommended after removing bone screws.

Screw Drive Recess	Screw Sizes (mm)	Screw Extractor Hollow Reamer					
		2.0 mm	2.7 mm	4.0 mm	5.0 mm	6.5 mm	8.0 mm
	1.5, 2.0	█					
	T8, T10	█					
	1.2, 1.5	█					
	2.0	█					
	2.4, 2.7		█				
	3.5, 4.0			█			
	T15, T20			█			
	4.5, 5.0				█		
	5.5, 6.0, 6.5					█	
	T25					█	
	7.3						█
	T30						█

Table 2

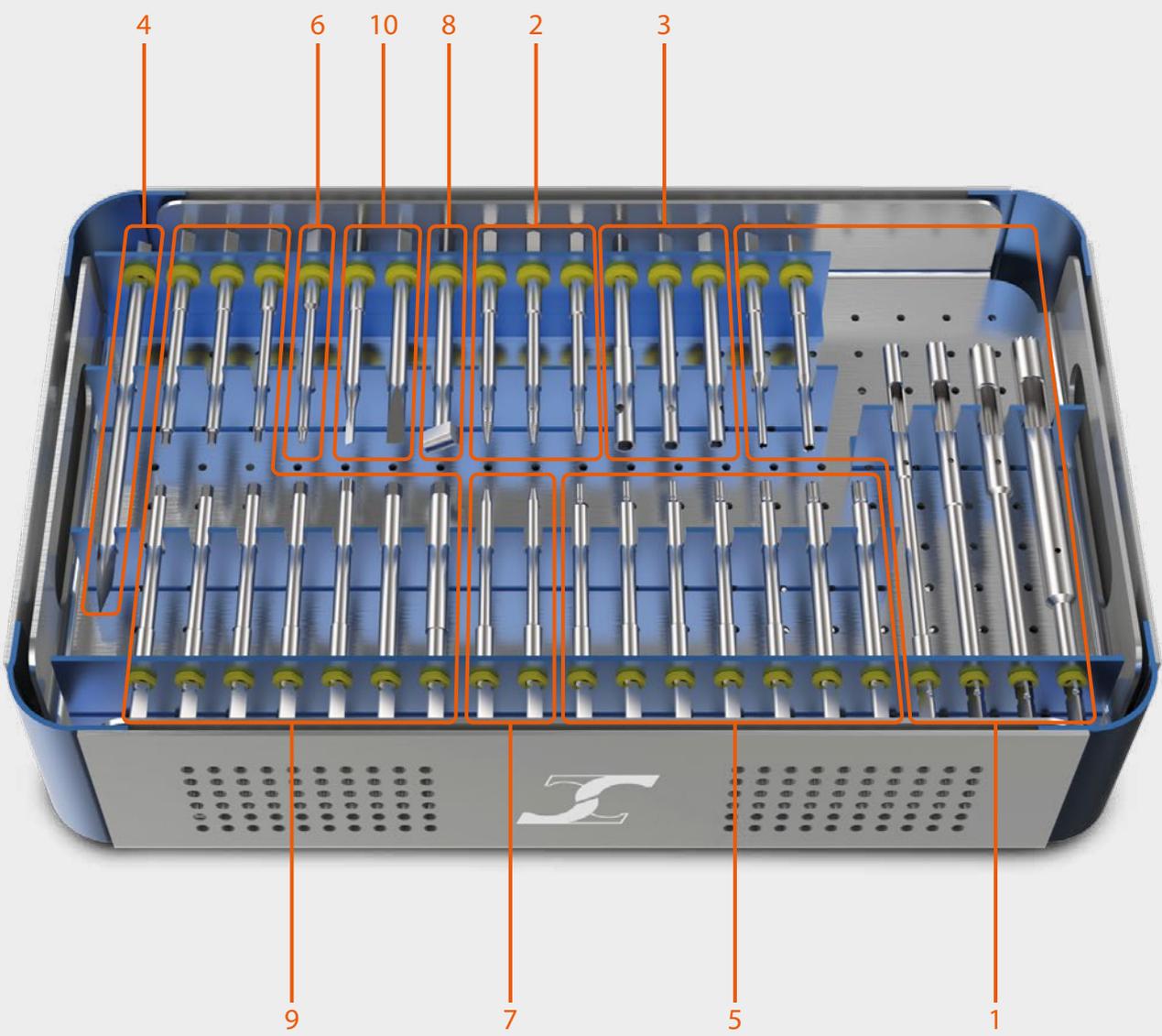
Screw Drive Recess	Screw Sizes (mm)	Screw Extractor With Inner Thread				
		3.5 mm	4.5 mm	5.0 mm	5.5 mm	6.5 mm
	3.5, 4.0	█				
	T15, T20	█				
	4.5		█			
	5.0			█		
	5.5, 6.0				█	
	6.5, 7.3					█
	T25					█
	T30					█

Table 3

Set Detail

Tray 1

	no	code	barcode	description	qty	
6.1-6.6 Tuščiavidurės dantytos frezos	1	02121002020	8680858425433	SCREW EXTR. HOLLOW REAMER 2.0 MM	1	
		02121002027	8680858425440	SCREW EXTR. HOLLOW REAMER 2.7 MM	1	
		02121002040	8680858425457	SCREW EXTR. HOLLOW REAMER 4.0 MM	1	
		02121002050	8680858425464	SCREW EXTR. HOLLOW REAMER 5.0 MM	1	
		02121002065	8680858425471	SCREW EXTR. HOLLOW REAMER 6.5 MM	1	
6.8-6.10 Konusinės formos reversinio sriegio atsuktuvai		02121002080	8680858425488	SCREW EXTR. HOLLOW REAMER 8.0 MM	1	
	2	02121000001	8698673481329	SCREW EXTRACTOR WITH THREAD Ø 2.5 MM	1	
6.16 Ylos formos aštrus gražtas 5 mm		02121000002	8698673481336	SCREW EXTRACTOR WITH THREAD Ø 3.5 MM	1	
		02161000005	8680858405855	SCREW EXTRACTOR WITH THREAD Ø 4.0 MM	1	
	3	02121000003	8698673481244	SCREW EXTRACTOR WITH INNER THREAD Ø 3.5 MM	1	6.11-13 Tuščiaviduris sraigto ištraukimo instrumentas su vidiniu sriegiu
		02121000007	8698673481282	SCREW EXTRACTOR WITH INNER THREAD Ø 4.5 MM	1	
	02121000008	8698673481299	SCREW EXTRACTOR WITH INNER THREAD Ø 5.0 MM	1		
6.17-22 Žvaigždutės formos atsuktuvai	4	02121002150	8680858425495	SCREW EXTR. SPIKE REAMER 5 MM	1	
	5	02121003300	8680858425501	SCREW EXTR. SCREWDRIVER STAR TIP T30	1	
		02121003250	8680858425518	SCREW EXTR. SCREWDRIVER STAR TIP T25	1	
		02121003200	8680858425525	SCREW EXTR. SCREWDRIVER STAR TIP T20	1	
		02121003150	8680858425532	SCREW EXTR. SCREWDRIVER STAR TIP T15	1	
		02121003100	8680858425549	SCREW EXTR. SCREWDRIVER STAR TIP T10	2	
		02121003080	8680858425556	SCREW EXTR. SCREWDRIVER STAR TIP T8	1	
6.24-6.25 Keturkampiai atsuktuvai	6	02121004020	8680858425563	SCREW EXTR. SCREWDRIVER CROSS TIP 2.0 MM	1	6.23 Kryžminis atsuktuvus 2 mm
	7	02121004015	8680858425570	SCREW EXTR. SCREWDRIVER SQUARE TIP 1.5 MM	1	6.26 T-formos atsuktuvus pedikuliniams sraigtams
		02121004012	8680858425587	SCREW EXTR. SCREWDRIVER SQUARE TIP 1.2 MM	1	
6.27-6.36 Heksagonaliniai atsuktuvai	8	02121004000	8680858425594	SCREW EXTR. PEDICUL SCREWDRIVER T-TIP	1	
	9	02121005055	8680858425600	SCREW EXTR. SCREWDRIVER HEX. TIP 5.5 MM	1	
		02121005050	8680858425617	SCREW EXTR. SCREWDRIVER HEX. TIP 5.0 MM	1	
		02121005045	8680858425624	SCREW EXTR. SCREWDRIVER HEX. TIP 4.5 MM	1	
		02121005040	8680858425631	SCREW EXTR. SCREWDRIVER HEX. TIP 4.0 MM	1	
		02121005035	8680858425648	SCREW EXTR. SCREWDRIVER HEX. TIP 3.5 MM	1	
		02121005030	8680858425655	SCREW EXTR. SCREWDRIVER HEX. TIP 3.0 MM	1	
		02121005025	8680858425662	SCREW EXTR. SCREWDRIVER HEX. TIP 2.5 MM	2	
		02121005020	8680858425679	SCREW EXTR. SCREWDRIVER HEX. TIP 2.0 MM	1	
		02121005015	8680858425686	SCREW EXTR. SCREWDRIVER HEX. TIP 1.5 MM	1	
6.37-38 Tiesūs atsuktuvai	10	02121003000	8680858425709	SCREW EXTR. SCREWDRIVER SLOTTED TIP S	1	
		02121001000	8680858425716	SCREW EXTR. SCREWDRIVER SLOTTED TIP L	1	
		000201700	000201700	SCREW EXTR. DESIGN TRAY	1	



Tray 2

	no	code	barcode	description	qty
6.46 Aštrus lenktas kabliukas	11	02083000002	8699931029222	SMALL SHARP HOOK	1
6.48-6.49 Modulinės rankenos	12	02121006001	8680858425334	SCREW EXTR. BONE GOUGE	1
6.39-6.42 Deimantiniai karbido grąžtai	13	02121006002	8680858425341	SCREW EXTR. T-QUICK HANDLE	1
	14	02121006003	8680858425358	SCREW EXTR. STRAIGHT QUICK HANDLE	1
	15	02121001030	8680858425365	SCREW EXTR. DRILL 3.0 MM	1
		02121001050	8680858425372	SCREW EXTR. DRILL 5.0 MM	1
	02121001060	8680858425389	SCREW EXTR. DRILL 6.0 MM	1	
	02121001070	8680858425396	SCREW EXTR. DRILL 7.0 MM	1	
	16	02121001035	8680858425402	3.5 MM BROKEN SCREW EXTRACTOR	1
		02121001045	8680858425419	4.5 MM BROKEN SCREW EXTRACTOR	1
	17	02121006004	8680858425426	SCREW EXTR. PLIERS	1
	18	02121000009	8698673481305	SCREW EXTRACTOR WITH INNER THREAD Ø 5.5 MM	1
		02121000010	8698673481312	SCREW EXTRACTOR WITH INNER THREAD Ø 6.5 MM	1
	19	02161000017	8680858405862	SCREW EXTRACTOR WITH THREAD Ø 1.7 MM	1
	20	02121005017	8680858425693	SCREW EXTR. SCREWDRIVER HEX. TIP 1.7 MM	1
		00340215080	3402150809	CONTAINER	1

6.47 Kaltukas

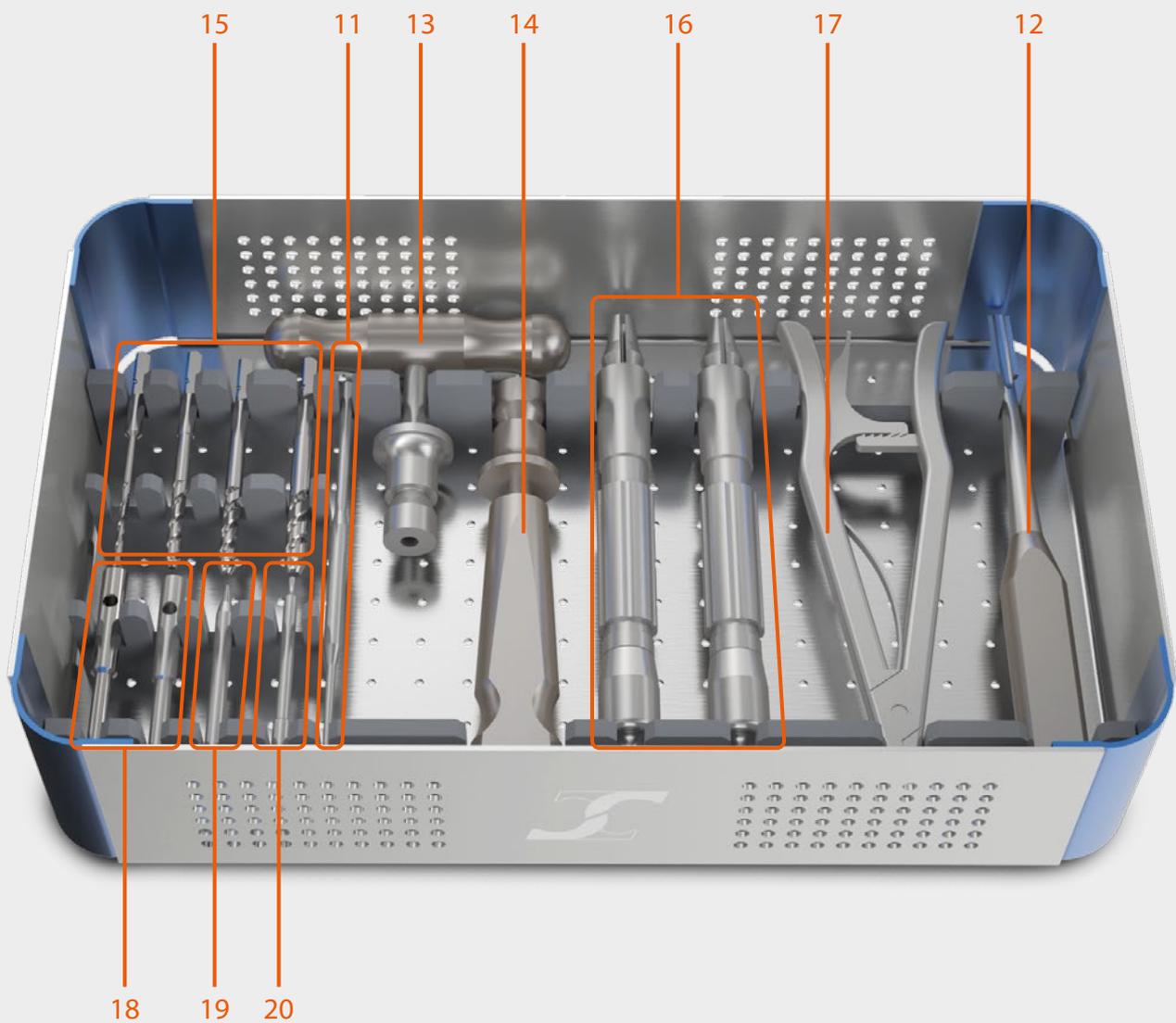
6.43-6.45
Užsifiksuojanys
spastukai
lūžusių sraigčių
ištraukimui

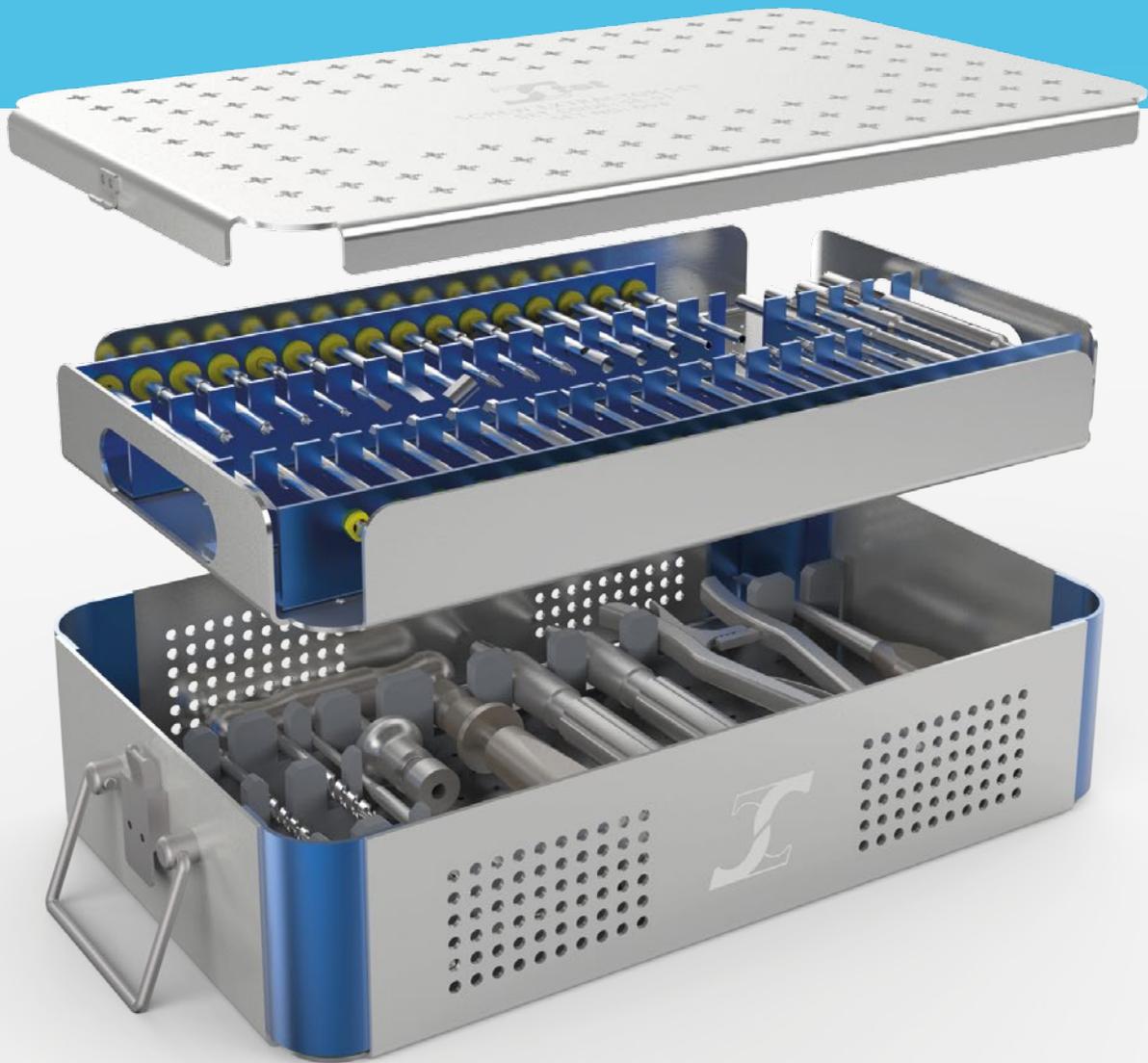
6.7 Konusinės
formos reversinio
sriegio atsuktuvus
1.7 mm

6.14-15 Tuščiaviduris
sraigto ištraukimo
instrumentas su vidiniu
sriegiu 5.5 ir 6.5 mm

6.50 Sterilizacijos ir
sandėliavimo konteineris

6.50 Sterilizacijos ir sandėliavimo konteineris su atitinkamais instrumentų laikikliais bei dangčiu. Tinkamas dezinfekcijai, autoklavavimui ir sterilizacijai.





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Rev 00/25.01.2017