TTA® RAPID

It's firm, it's safe, it's RAPID.

patented

Special Thanks to
Dr. Caroline Huisman-Wildeman

TTA RAPID®

RITA LEIBINGER MEDICAL

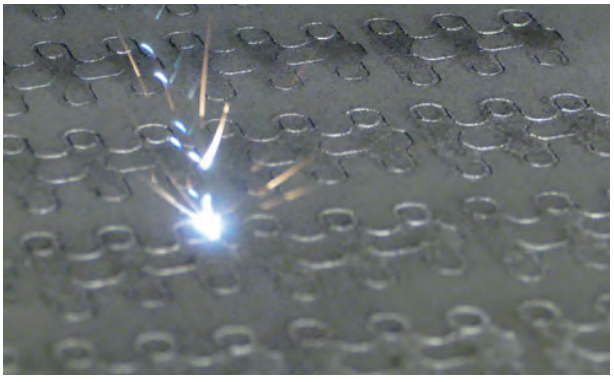
TTA RAPID ®

Tibial Tuberosity Advancement (TTA) as a technique for the surgical management of cranial cruciate ligament insufficiency has gained increasing acceptance and popularity in recent years. As we learn more, efforts are being made to simplify the technique, to make it more user friendly and overcome some of the pitfalls of the original technique. Developed in collaboration with Dr. Yves Samoy, University of Ghent, TTA Rapid is one of the newer developments in both implant technology and technique.

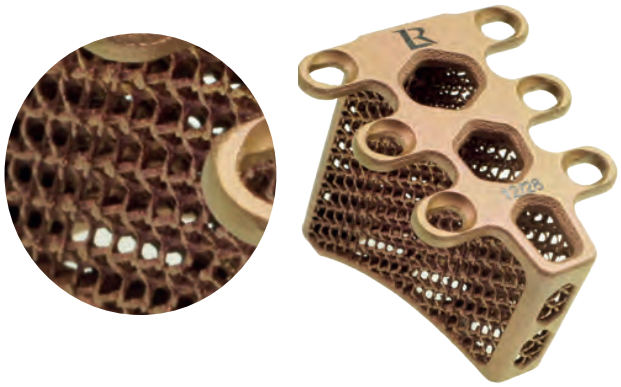
The Implant

The manufacture of TTA Rapid cages has only been made possible with advances in materials and manufacturing technology. The cages are made by an additive manufacturing (AM) 3D printing process known as selective laser sintering (SLS). The process is interesting to watch. Although other materials can be used in the process, TTA Rapid cages start life as a very fine, commercially pure titanium powder. A very thin layer of titanium powder is deposited on the working bed of the SLS machine and a modified print head carrying a high intensity laser is used to selectively melt the powder to bond (sinter) regions together. As further layers of powder are applied and the laser sintering process repeated, a solid three dimensional structure begins to form within the 'sand-pit' of metal powder. Electron beam melting (EBM) is a similar procedure that uses an electron beam instead of a laser.

Once the full structure has been created, the cages are separated from the powder and various chemical and other finishing processes are performed to leave the cages in their final, implantable state. Through this process, shapes can be created that would either be impossible to produce using more conventional technologies or cost prohibitive. In the case of TTA Rapid, a very porous honeycomb titanium lattice with a modulus similar to that of cancellous bone is generated permitting very rapid bony ingrowth to occur. Titanium is also very biocompatible, MRI compatible and typically needs to be inoculated with 10 times as many infectious units for an implant associated infection to develop when compared to Stainless Steel.



The lattice found in the TTA Rapid cages is bound on 4 sides



by an anatomically shaped, rigid shell of the same material with one side carrying lugs with screw holes in them. With the lattice, cage and screw lugs being one piece, the cages are very stable in situ.

The constructs are so stable that auxiliary implants such as plates, wires, forks and staples are rarely indicated. This has a number of benefits:

- Reduced morbidity and biological cost that may be associated with the dissection and placement of additional implants.
- Reduced potential for cold conduction with superficially sited metallic implants.
- Fewer additional holes created in the tibial diaphysis which may contribute to crack propagation and failure of the tibial shaft.
- Metals of different electro-potentials are avoided in the same construct. Theoretically this reduces the potential for galvanic corrosion to occur (all components are titanium).
- Simplified inventory management.
- Potential time savings in the placement of implants.

Caution: TTA Rapid patients are often subjectively more comfortable in their early post-operative recovery than many patients undergoing other osteotomy surgeries. TTA Rapid still involves a major osteotomy and both appropriate patient selection and appropriate client education for post-operative management are indicated.

TTA RAPID ® Technique

The dog is placed in a dorsal recumbency with the affected limb suspended from a stand. Make sure that the dog's paws are not fixed too tightly, since the affected limb will be put against the table later in the surgery. Preferably, the joint is investigated to assess the menisci and cranial cruciate ligament remnants. Remedial action is taken as necessary. TTA-Rapid is performed through a medial skin incision.

01 Pre-operative planning

a. Calculating the advancement can be done in different ways (classic TTA template; common tangent technique (Dennler); 2.07 x Tibial plateau Length (Inauen); Ness; …). However, none of these techniques are perfect. A critical mind is advised when applying those measurements.

b. Use of the template:

1. Where possible, calibrate the radiograph on the screen to real size.

2. Place the template over the radiograph and choose the appropriate cage width.

3. Adjust the template position until the cage sits about 3mm below the proximal cortex on its caudal edge. Now measure the thickness of the cranial tibial cortex in the region of the black dot. Note this value; you will need it during surgery.
XX / YY/ Z
XX = Size of Implant from Template
YY = Implant deep (you find out, after the saw cut)
Z = thickness of the cranial tibial cortexin the region of the Maquet hole

02 Joint surgery

a. If performing a lateral arthrotomy, leave about the lasts centimeter of the joint capsule closest to the tibia open. This allows enough slack to later perform the advancement.

03 TTA-RAPID protocol

a. Using the saw guide

The saw guide is an L-shaped device developed to facilitate the correct position of the osteotomy. It has been developed to ensure a sufficiently large cranial fragment is created for screw placement. The vertical arm of the guide has 2.5mm holes placed at strategic points, over a 1mm wide slot. The numbers beside the holes correspond with the size of the cage. This will prevent making a too distal osteotomy. The horizontal arm of the guide is a scale in millimeters. This will prevent making a too caudal osteotomy.

Sawing the crista tibiae

1. A 2.5mm pin is placed through the joint capsule at the intersection of the femoral condyle and the tibial plateau. On the lateral side, the pin should start slightly in front of the level of “Gerdy‘s Tubercle”. This pin is used as the proximal fixation of the saw guide.

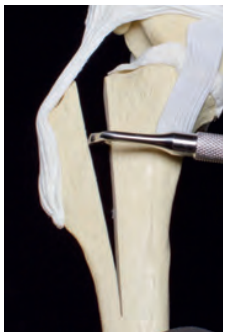
2. The guide is dropped over the pin using one of the numbered holes in the vertical arm, corresponding with the size of the cage measured during pre-operative planning.

3. A peg is placed into one of the holes in the horizontal arm of the drill guide, selecting the number of millimeters measured during pre-operative planning.

4. Press the saw guide against the medial aspect of the tibia with protruding peg forced up against the cranial side of the tibia. Hold it in that position. Correct use of the saw guide will place the osteotomy just caudal to the cranial cortex of the tibia. (As a guide: In a large dog the cortex is approximately 5mm thick and in a small dog approximately 3mm.)

DO NOT PRESS THE HORIZONTAL ARM AGAINST THE BONE, AS THIS WILL CAUSE AN OBLIQUE OSTEOTOMY!

5. Use the saw guide to create the osteotomy. Optionally, a blade can be used to open the fascia/periostium prior to the osteotomy.



b. Opening the osteotomy

1. Depending on the required cage size, different osteotomy spreaders can be used to spread and hold open the osteotomy. Provided this is done carefully and slowly, allowing the bone time to adjust, the hinge is unlikely to fail. This being the most critical point of the surgery, the spreaders should be used with great caution!

2. Start with the 3mm spreader held sideways (thinnest part) located at the most proximal part of the osteotomy and gently turn it to spread open the osteotomy. Always turn the spacer downwards to minimize the forces on the fragment. A second spacer/spreader held sideways in the distal region of the osteotomy can be used to maintain the displacement.

CAUTION: DO NOT USE THIS 2ND SPREADER TO INCREASE THE DISPLACEMENT, AS THIS WILL CAUSE BREAKING OF THE CORTEX!!!

Repeat these steps until the required displacement is reached.

3. The depth of the osteotomy is measured with a drill depth gauge at the proximal extent of the osteotomy. This measurement is rounded up to select the correct cage Length.

c. Fixating the cage

1. The ears of the cage need to be bent using the bending stick. Ears on the caudal side (tibia) should point slightly upwards, while the ears on the cranial side (crista tibiae) should be tilted slightly downwards. Slight under-bending of the caudal ears and slight over-bending of the cranial ears will help compress the osteotomy against the cage.

2. Elevate the periostium from the bone in the region where the cage will be fixed.

3. Insert the cage into the osteotomy. Use bone Forceps to make sure the ears of the cage are in close contact with the bone.

4. Once the cage is in place, check if the height of the cage is correct. This can be done by palpating the proximal tibia with the tip of a small mosquito clamp. You should feel about 3mm of bone above the top of the cage. More bone means a more distal placement of the cage and thus subsequently a more cranial displacement of the tibial tuberosity.

5. Large bone Forceps can be used to give extra compression on the cage. This step is not essential if the distal cortex is still intact, but will result in a better bone contact with the cage.

6. 2.4mm screws are inserted into the cage. Start with the most cranial, most proximal screw. The orientation of the screws should be medio-proximal to latero-distal (similar as the orientation of the fork in a standard TTA).The second screw is the caudo-proximal screw. The orientation of this screw is cranio-medio-proximal to caudo-latero-distal ("Away from the joint, away from the osteotomy site"). The rest of the screws are placed in the same fashion starting with the most proximal screws. Once all screws are inserted, remove the bone Forceps and re-tighten all screws.

7. Insertion of Hydroxy-Apatite paste inside and underneath the cage will accelerate healing of the osteotomy. Close the fascia where possible.
8. Close the wound in a routine fashion.

d. Aftercare

1. Casting/bandaging is generally not required.
2. A light dressing can be applied for 3 to 5 days.
3. NSAIDs are provided for 3 to 4 weeks.
4. With HA paste, clinical union can generally be anticipated within 6 weeks.

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Department of Medical Imaging and Small Animal Orthopedics
Faculty of Veterinary Medicine, Ghent University

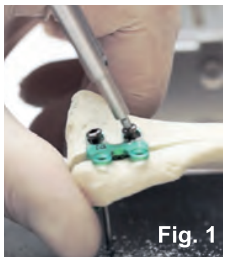


Fig. 1


Fig. 2

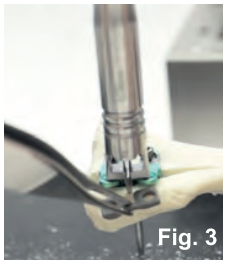


Fig. 3


Fig. 4

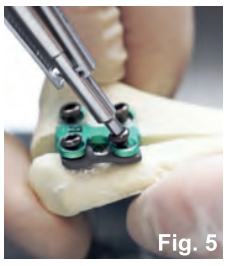


Fig. 5


Fig. 6

TTA RAPID and Patella Luxation (TTTA)

Dr. Hugo Schmökel

When a dog suffers from a cranial cruciate ligament rupture with a simultaneous patellar luxation, this can be addressed with a modified TTA Rapid procedure. Prior to the TTA Rapid surgery itself, it should be determined if the dog would benefit from a trochleoplasty. If so, this should be performed before the actual TTA Rapid procedure(1).
The osteotomy used for the TTA Rapid procedure can also be used to achieve a medial or lateral tibial tuberosity transposition (TTT), depending on the kind of patellar luxation. The further described procedure focuses on a lateralization of the crest, needed for the correction of a medial patellar luxation
After performing the osteotomy, the appropriate cage is inserted into the osteotomy and all of the caudal screws are inserted in the tibia (Figure 1). Take care to choose a cage that has a bigger medio-lateral Length than measured after the osteotomy, as both cortices of the transposed crest need to be supported! Usually, the longest cage is advised.

Consecutively, the tibial crest is slightly advanced, so that itcan be moved laterally with the tibia tappet instrument (Fig 2).

Be very careful performing this and restrict the advancement to the absolute minimum to avoid crest avulsion. Once the desired position is reached, a corresponding washer is placed between the crista tibiae and the ears of the cage (Figure 3). If the transposition is sufficient to prevent dislocation of the patella, the remaining screws are inserted and the operation finished as described (Figure 4 and 5).

In case of a a lateral luxation, the tibial crest is shifted medially in a similar manner after fixating the cranial part of the cage in the tibial crest.

1. Samoy Y, Verhoeven G, Bosmans T, Van der Vekens E, de Bakker E, Verleyen P, et al. TTA Rapid: Description of the Technique and Short Term Clinical Trial Results of the First 50 Cases. Vet Surg. 2014:n/a-n/a.

Studies about TTA RAPID

Comparison of Outcomes Associated with Tibal Plateau Levelling Osteotomy and a Modified Technique for Tibial Tuberosity Advancement for the Treatment of Cranial Cruciate Ligament Disease in Dogs: A Randomized Clinical Study

University of Lyon, VetAgro Sup, Marcy l'Etoile, France
Véronique Livet, Arnaud Baldinger, Éric Viguier, Mathieu Taroni, Mathieu Harel, Claude Carozzo, Thibaut Cachon
VCOT 2019

TTA Rapid: Description of the Technique and Short Term Clinical Trial Results of the First 50 Cases

Ghent University, Faculty of Veterinary Medicine, Department of Veterinary Medical Imaging and Small Animal Orthopaedics
Yves Samoy1, DVM, PhD, Geert Verhoeven1, DVM, PhD, Diplomate ECVS, Tim Bosmans2, DVM, PhD, Elke Van der Vekens1, DVM, Diplomate ECVDI, Evelien de Bakker1, DVM, PhD, Piet Verleyen1, DVM and Bernadette Van Ryssen1, Prof, DVM, PhD
Vet Surg 2014

Tibial tuberosity advancement in small-breed dogs using TTA Rapid® implants. Complications and outcome

Evidensia Strömsholm Small Animal Referral Hospital, Sweden
Dyall B A R, DVM, Spec SWE. Schmökel H, DVM, DECVS, PHD
2016

TTA Rapid in the treatment of the canine cruciate deficient stifle: short- and medium-term outcome

S. J. Butterworth & D. M. Kydd, Weighbridge Referral Centre & Kydd & Kydd Vets
Journal of Small Animal Practice 2017

TTA Rapid for treatment of cranial cruciate ligament injuries in dogs. Clinical results 50 cases.

Kydd and Kydd Veterinary Health Centre, Wimbledon
David M Kydd BVetMed CertVR CertSAO MRCVS
Orthopaedic News from Kydd & Kydd 2014

rapid.leibinger.vet

Postoperative infection with a multiresistant Staphylococcus aureus (MRSA) in a Bernese mountain dog with a rupture of the cranial cruciate ligament

Ghent University, Faculty of Veterinary Medicine, Department of Veterinary Medical Imaging and Small Animal Orthopaedics

1F. Vandael, 1E. de Bakker, 2D. Paepe, 1L.Mosselmans, 1Y. Samoy, 1G. Verhoeven, 1B. Van Ryssen

Flemish Veterinary Journal, 2015, 84

TTA Rapid: an interesting alternative operation method of an injured cranial crucial ligament

Lecznica Weterynaryjna Arwet w Wieliczce
lek. wet. Rafał Korta
WETERYNARIA W PRAKTYCE 2014

Bone Regeneration in Critical-Sized Bone Defects Treated with Additively Manufactured Porous Metallic Biomaterials: The Effects of Inelastic Mechanical Properties

M. Koolen, SA Yavari, K Lietaert, R Wauthle, AA Zadpoor, H Weinans
Universities of Utrecht & Delft, 3D Systems Healthcare
MDPI Journals (Materials) 2020

TTA RAPID with porous structure stimulates bone ingrowth

„TTA Rapid is made from pure titanium using innovative additive manufacturing (3D printing) technologies that allow to create complex geometries like porous structures. These porous structures stimulate bone ingrowth through the open porosities, have an improved fixation thanks to the high roughness and corresponding coefficient of friction and have in addition a lower stiffness and thus avoid stress-shielding. The mechanical and clinical performance of the dodecahedron unit cell – also used in TTA Rapid – has been reported in literature, showing superior dynamical properties[1] and bone regeneration[2] compared to standard Ti-6Al-4V porous structures. These research-based innovations are the cornerstone of TTA Rapid, leading to over 80,000 TTA Rapid cages successfully implanted since 2011.“

[1] Wauthle et al., Revival of pure titanium for dynamically loaded porous implants using additive manufacturing. Mater. Sci. Eng. C Mater. Biol. Appl. 2015, 54, 94–100.

[2] Koolen et al., Bone Regeneration in Critical-Sized Bone Defects Treated with Additively Manufactured Porous Metallic Biomaterials: The Effects of Inelastic Mechanical Properties. Materials 2020, 13, 1992.

TTA RAPID Instrument Kit

Contains:
Sterilization Tray
„Petite“ Saw Guide (not „tiny“) + K-Wire
„Standard“ Sawguide + K-Wire
1 Pin
Lever-Spreader 3/9 + 6/12
Twist Drill 1.8
Depth Gauge
Screwdriver Handle
Screw Driver Shaft 2.4 + Holding Sleeve
Drill Guide
Plate Holding Forceps

132-6000-10

Tray without content

132-5000-10/A

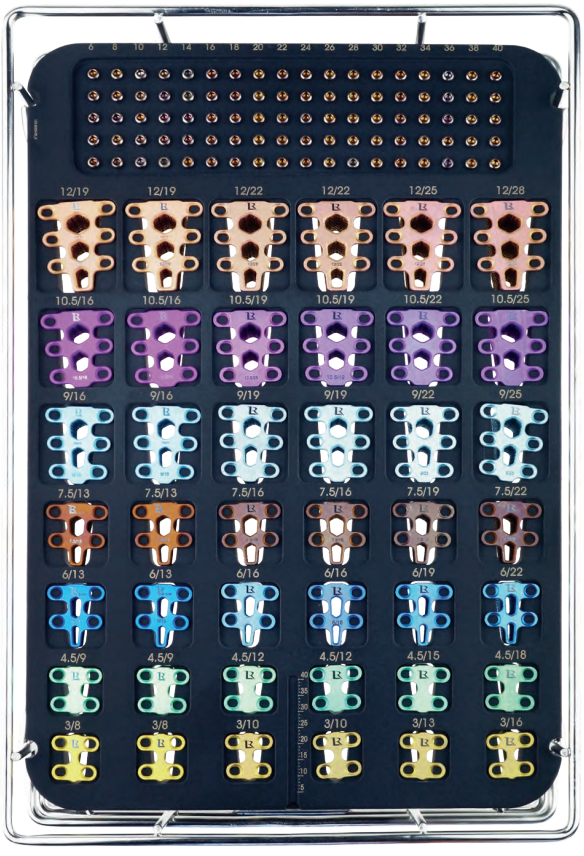
TTA RAPID Premium Set

Contains:
Sterilization Tray with Lid
5x 2.4mm Screws of each length
(6-40mm, 90 pcs. total)
One Cage of each size from 3-12mm
Plus: 1 Cage of each short and very short size in addition
(42 cages total)

132-6002-00

Tray without content

132-5000-00/A



TTA RAPID Starter Split Set I

Contains:
Sterilization Tray with Lid
5x 2.4mm Screws of each length
(6-40mm, 90 pcs. total)
1 Cage of each size from 3-12mm
(28 cages total)

132-6003-00

Tray without content

132-5000-00/A

TTA RAPID Starter Set II

Contains:
Sterilization Tray with Lid
5x 2.4mm Screws of each length
(6-40mm, 90 pcs. total)
One Cage of each size from 6-10.5mm
Plus: 1 Cage of each short and very short size in addition
(24 cages total)

132-6004-00

Tray without content

132-5000-00/A

TTA RAPID Starter Set III

Contains:
Sterilization Tray with Lid
5 pcs. 2.4mm Screws of each length
(6-40mm, 90 pcs. total)
1 Cage of each size from 6-10.5mm
(16 Cages total)

132-6005-00

Tray without content

132-5000-00/A

TTA RAPID Starter Set IV

Contains:
Sterilization Tray with Lid
5 pcs. 2.4mm Screws of each length
(6-40mm, 90 pcs. total)
1 Cage from 6-10.5mm,
(without long versions)
(12 Cages total)

132-6006-00

Tray without content

132-5000-00/A

Sterilization Container

310x190x130mm

blue (image)

150-5401-30

green

150-5402-30

flat (1 Tray only)

150-5401-00

TTA RAPID ® Cages

Titanium

Product Code	Size (mm) (width/depth)	Colour
132-0023-08	3/08 (petite) for 2.0 screws	
132-0023-10	3/10 (petite) for 2.0 screws	
132-0023-13	3/13 (petite) for 2.0 screws	
132-0003-08	3/08 for 2.4 screws	
132-0003-10	3/10 for 2.4 screws	
132-0003-13	3/13 for 2.4 screws	
132-0003-16	3/16 for 2.4 screws	
132-0045-09	4.5/09 for 2.4 screws	
132-0045-12	4.5/12 for 2.4 screws	
132-0045-15	4.5/15 for 2.4 screws	
132-0045-18	4.5/18 for 2.4 screws	
132-0006-13	6/13 for 2.4 screws	
132-0006-16	6/16 for 2.4 screws	
132-0006-19	6/19 for 2.4 screws	
132-0006-22	6/22 for 2.4 screws	
132-0075-13	7.5/13 for 2.4 screws	
132-0075-16	7.5/16 for 2.4 screws	
132-0075-19	7.5/19 for 2.4 screws	
132-0075-22	7.5/22 for 2.4 screws	

Product Code	Size (mm) (width/depth)	Colour
132-0009-16	9/16 for 2.4 screws	
132-0009-19	9/19 for 2.4 screws	
132-0009-22	9/22 for 2.4 screws	
132-0009-25	9/25 for 2.4 screws	
132-0105-16	10.5/16 for 2.4 screws	
132-0105-19	10.5/19 for 2.4 screws	
132-0105-22	10.5/22 for 2.4 screws	
132-0105-25	10.5/25 for 2.4 screws	
132-0012-19	12/19 for 2.4 screws	
132-0012-22	12/22 for 2.4 screws	
132-0012-25	12/25 for 2.4 screws	
132-0012-28	12/28 for 2.4 screws	
132-0135-19	13.5/19 for 2.4 screws	
132-0135-22	13.5/22 for 2.4 screws	
132-0135-25	13.5/25 for 2.4 screws	
132-0135-28	13.5/28 for 2.4 screws	
132-0015-19	15/19 for 2.4 screws	
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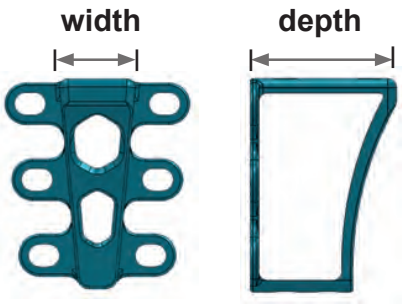
132-0015-25	15/25 for 2.4 screws	
132-0015-28	15/28 for 2.4 screws	

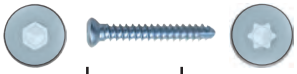


Tiny sizes
in next section




2.0 Self-tapping Screws, Titanium

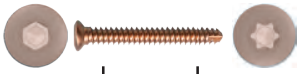
Hexagonal or **Star Drive** head, self tapping, with three flute cutting edge



Length (mm)	Hexagonal (Petite)		Star Drive (Petite)	
5			245-520-05	
6	245-220-06		245-520-06	
7			245-520-07	
8	245-220-08		245-520-08	
9			245-520-09	
10	245-220-10		245-520-10	
12	245-220-12		245-520-12	
14	245-220-14		245-520-14	
16	245-220-16		245-520-16	
18	245-220-18		245-520-18	
20	245-220-20		245-520-20	
22	245-220-22		245-520-22	
24	245-220-24		245-520-24	
26	245-220-26		245-520-26	
28	245-220-28		245-520-28	
30	245-220-30		245-520-30	

2.4 Self-tapping Screw Titanium

Hexagonal or **Star Drive** Head, self tapping, with three flute cutting edge



Length (mm)	Hexagonal (Standard)		Star Drive (Standard)
6	245-224-06		245-524-06
8	245-224-08		245-524-08
10	245-224-10		245-524-10
12	245-224-12		245-524-12
14	245-224-14		245-524-14
16	245-224-16		245-524-16
18	245-224-18		245-524-18
20	245-224-20		245-524-20
22	245-224-22		245-524-22
24	245-224-24		245-524-24
26	245-224-26		245-524-26
28	245-224-28		245-524-28
30	245-224-30		245-524-30
32	245-224-32		245-524-32
34	245-224-34		245-524-34
36	245-224-36		245-524-36
38	245-224-38		245-524-38
40	245-224-40		245-524-40

Screw Rack

Product Code	Description
150-0520-00	for 2.0 mm screws
150-0524-00	for 2.4 mm screws

TTA RAPID®

Correction of a Patella Luxation during a TTA RAPID Surgery

This technique is suitable for dogs which do not have a cruciment ligament rupture but suffer from a patella-luxation and a cruciate ligament rupture.

Patella Luxation Spacers

For RAPID LUXATION and TTA RAPID, Titanium

Product Code	Specifications	cage sizes
132-8030-01L	1 mm height, 2 holes, left	Petite/Tiny
132-8030-01R	1 mm height, 2 holes, right	Petite/Tiny
132-8030-02L	2 mm height, 2 holes, left	Petite/Tiny
132-8030-02R	2 mm height, 2 holes, right	Petite/Tiny
132-8030-03L	3 mm height, 2 holes, left	Petite/Tiny
132-8030-03R	3 mm height, 2 holes, right	Petite/Tiny
132-8030-04L	4 mm height, 2 holes, left	Petite/Tiny
132-8030-04R	4 mm height, 2 holes, right	Petite/Tiny
132-8020-02L	2 mm height, 2 holes, left	3 - 7,5 mm
132-8020-02R	2 mm height, 2 holes, right	3 - 7,5 mm
132-8020-03L	3 mm height, 2 holes, left	3 - 7,5 mm
132-8020-03R	3 mm height, 2 holes, right	3 - 7,5 mm
132-8020-04L	4 mm height, 2 holes, left	3 - 7,5 mm
132-8020-04R	4 mm height, 2 holes, right	3 - 7,5 mm
132-8010-02L	2 mm height, 3 holes, left	9 - 15 mm
132-8010-02R	2 mm height, 3 holes, right	9 - 15 mm
132-8010-04L	4 mm height, 3 holes, left	9 - 15 mm
132-8010-04R	4 mm height, 3 holes, right	9 - 15 mm
132-8010-06L	6 mm height, 3 holes, left	9 - 15 mm
132-8010-06R	6 mm height, 3 holes, right	9 - 15 mm

Tibia Tappet

For inserting Patella Luxation Spacers.

Product Code	Description
132-4071-00	Petite / Tiny 2.0 mm
132-4070-00	Standard 2.4 mm

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Patella Saw

With standard sawblade, incl. Allen Wrench 1.5mm

23-1005-90

Twist Drill

Product Code	Ø (mm)	Length (mm)	Connec-tion
148-0080-15	1.5 (Petite)	70/30	straight sh.
148-0080-18	1.8 (Stand.)	125/25	straight sh.

Product Code	Ø (mm)	Length (mm)	Connec-tion
148-0081-15	1.5 (Petite)	85/60	AO QC
148-0081-18	1.8 (Stand.)	125/25	AO QC

TTA Depth Gauge

Product Code	Description
164-1520-20	Petite 2.0 mm
164-2735-60	Standard 2.4 mm

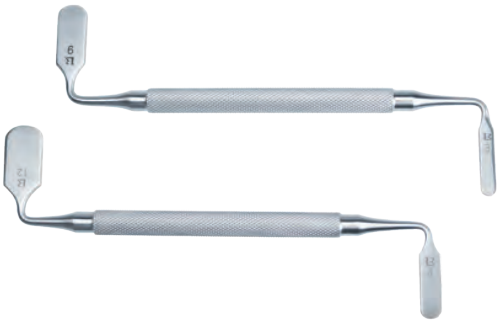
TTA RAPID ® Spreader

With tensioning and fixation screw, 16 cm

132-4080-16

TTA RAPID ® Lever-Spreader

Product Code	Description
132-4000-13	3 mm & 9 mm
132-4010-13	6 mm & 12 mm
132-4015-13	13.5 mm & 15 mm



TTA RAPID ® Saw Guide

Product Code	Description
132-4040-00	for cage size 6-15 mm
132-4041-00	for cage size 3-4.5 mm

TTA RAPID ® Saw Guide Pin

Ø 1.0mm

132-4030-10

TTA RAPID ® Bending Iron

120 mm

132-4020-00

Screwdriver Handle

Silicone, AO-Connection
sterilizable up to 134°C / 273°F

247-0103-00

Screw Driver Shaft Hexagonal

Standard 2.4 mm (Holding Sleeve recommended)

128-0900-20

Holding Sleeve

2.4 mm for 128-0900-20

128-0940-24

Screw Driver Shaft Star-Drive

AO conncection, self-holding, (no Holding Sleeve needed)
Star-Drive T8, for 2.0 & 2.4 mm Screws, 100mm

128-2024-08

Plate Holding Forceps

160 mm, angulated

164-0050-16

K- Wires, Single Trocar

Product Code	Description
144-1015-10	1.5 mm x 100 mm
144-1025-10	2.5 mm x 100 mm

Drill Guide

1.5 / 1.8 mm, 100 mm length

164-0070-18

Boneholding Forceps

21,5 cm - with spin lock

128-0525-21

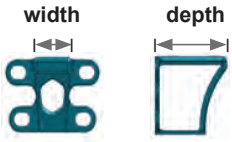
Tiny TTA RAPID ® Set

Titanium
Tiny TTA RAPID is designed for tiny animals – especially cats, toy dogs and dogs with short legs needing a wide advancement. The tiny sawguide allows short osteotomies.

Contains:
1 Sterilization Tray with Lid
1 of each Tiny TTA RAPID Cage (12 total)
1 of each 2, 3 & 4mm Patella Spacer (6 total)
1 Rapid Luxation Plate „Petite“
5 of each 1.5mm Screw (6-20mm, 40 total)
5 of each 2.0mm Screw (6-26mm, 55 total)
1 Tibia Tappet „Petite“
1 Plate Holding Forceps
1 Tiny Sawguide with Pin & K-Wire
1 Depth Gauge
2 Drills (1.1 & 1.5mm)
2 Screw Driver Shafts (T6 & T8)
1 Screwdriver Handle
1 Drill Guide

132-6500-00

Tray without content
132-6500-10



Tiny TTA RAPID ® Cages

Titanium

Product Code	Size (mm) (width/depth)	Colour
132-0152-06	**2/06** for 1.5 screws	
132-0152-08	**2/08** for 1.5 screws	
132-0152-10	**2/10** for 1.5 screws	
132-0153-07	**3/07** for 1.5 / 2.0 screws	
132-0153-09	**3/09** for 1.5 / 2.0 screws	
132-0153-11	**3/11** for 1.5 / 2.0 screws	

Product Code	Size (mm) (width/depth)	Colour
132-0245-08	**4.5/08** for 2.0 screws	
132-0245-10	**4.5/10** for 2.0 screws	
132-0245-12	**4.5/12** for 2.0 screws	
132-0026-09	**6/09** for 2.0 screws	
132-0026-11	**6/11** for 2.0 screws	
132-0026-13	**6/13** for 2.0 screws	

Patella Luxation Spacer

For RAPID LUXATION and TTA RAPID, Titanium

Product Code	Specifications	for cages
132-8030-01L	1 mm height, 2 holes, left	petite/tiny
132-8030-01R	1 mm height, 2 holes, right	petite/tiny
132-8030-02L	2 mm height, 2 holes, left	petite/tiny
132-8030-02R	2 mm height, 2 holes, right	petite/tiny

Product Code	Specifications	for cages
132-8030-03L	3 mm height, 2 holes, left	petite/tiny
132-8030-03R	3 mm height, 2 holes, right	petite/tiny
132-8030-04L	4 mm height, 2 holes, left	petite/tiny
132-8030-04R	4 mm height, 2 holes, right	petite/tiny

Rapid Luxation Plate

4-hole, 1 mm thick, with gliding holes for 1.5 + 2.0 mm screws

132-8200-03

1.5 Cortical Screw Titanium

Star Drive head, self tapping,
with three flute cutting edge

Length (mm)	Star Drive
6	245-515-06
7	245-515-07
8	245-515-08
9	245-515-09
10	245-515-10
12	245-515-12
14	245-515-14
16	245-515-16
18	245-515-18
20	245-515-20

2.0 Cortical Screw Titanium

Star Drive head, self tapping,
with three flute cutting edge

Length (mm)	Star Drive
5	245-520-05
6	245-520-06
7	245-520-07
8	245-520-08
9	245-520-09
10	245-520-10
12	245-520-12
14	245-520-14
16	245-520-16
18	245-520-18
20	245-520-20
22	245-520-22
24	245-520-24
26	245-520-26
28	245-520-28
30	245-520-30

Patella Luxation Tibia Tappet

For inserting Patella
Luxation Spacers.

132-4071-00

Video

rapid.leibinger.vet

Patella Saw

With standard sawblade, incl. Allen Wrench 1.5mm

23-1005-90

Twist Drill

Product Code	Ø (mm)	Length (mm)	Connection
148-0080-11	1.1	60	straight shank
148-0080-15	1.5	85	straight shank

Product Code	Ø (mm)	Length (mm)	Connection
148-0081-11	1.1	60	AO QC
148-0081-15	1.5	85	AO QC

TTA Depth Gauge
Tiny 1.5/2.0 mm

164-1520-20

TTA RAPID ® Tiny Spreader
With tensioning and fixation screw, 12 cm

132-4080-12

TTA RAPID ® Lever-Spreader
3 mm & 9 mm

132-4000-13

TTA RAPID ® Saw Guide
For Tiny cages size 2-6 mm

132-4042-00

TTA RAPID ® Saw Guide Pin
Ø 1.0mm

132-4030-10

TTA RAPID ® Bending Iron
120 mm

132-4020-00

Screwdriver Handle
Silicone, AO-Connection
sterilizable up to 134°C / 273°F

247-0103-00

Screwdriver Shaft Star-Drive
AO conncection, self-holding (no Holding Sleeve needed)

Product Code	Description
128-1520-15	Star-Drive T6, for 1.5 mm Screws
128-1520-20	Star-Drive T8, for 2.0 & 2.4 mm Screws

Plate Holding Forceps
90 mm, curved

164-0050-09

K-Wire, Single Trocar
1.5 mm x 100 mm

144-1015-10

Drill Guide
1.1 / 1.5 mm, 100 mm length

164-0070-15