STRAUMANN®
FALCON

Navigate through the invisible.

straumann

LET'S EXPLORE THE PARADIGM SHIFT IN SURGICAL SOLUTIONS WITH STRAUMANN® FALCON

STRAUMANN® FALCON

Navigate through the invisible.

AT A GLANCE

Straumann® Falcon is a **dynamic** navigation system that is used in **computer-assisted instrument** navigation during dental procedures. It is a technology that allows the use of free-hand technique together with **3D-visualization** of the instruments **in real time**, using CBCT and IOS scans for planning.

WHAT'S IN IT FOR YOU?

- Enabler for immediacy
- Powerful visualization
- Standardization and documentation of cases
- Flexibility during surgery
- Enabled mobility and space saving
- Premium practice differentiator

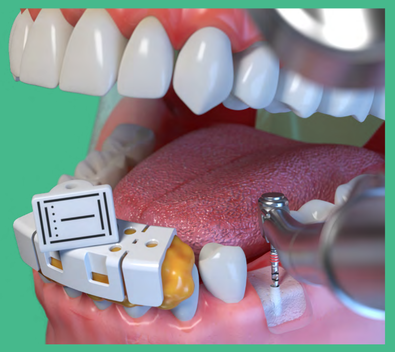
Straumann® Falcon

WHAT'S IN IT FOR YOU?

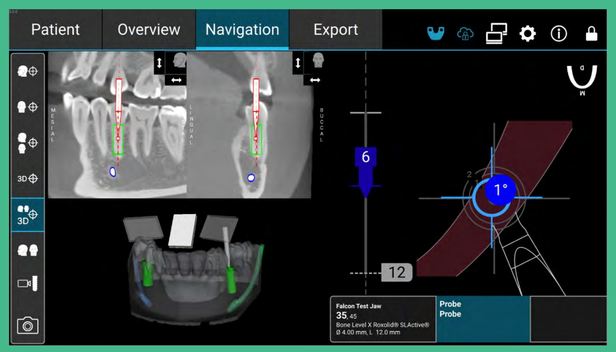
ENABLER FOR IMMEDIACY

Straumann® Falcon offers great visual and tactile feedback.

Predictable while still **feeling** the bone and soft tissue



Capable to **adapt** live to clinical situation during surgery



Prosthetic-**driven**

WHAT'S IN IT FOR YOU?

ENABLER FOR IMMEDIACY

Feeling bone is vital. Straumann® Falcon offers unique features compared to static guides with no compromise on accuracy.

FEATURES

→ **Visual and tactile bone feedback** during surgery

→ **High visibility** of surgical field

→ **Live visualization** of instruments angulation and depth

→ Suitable for single, multi and fully edentulous cases

BENEFITS

→ Visualization and sensing of the bone during surgery, **assists assessment** of bone quality

→ **No limitation** in soft-tissue management, no compromise due to guide fitting

→ **Full visualization** of drilling trajectory, ability to self assess where to st**op**

OUTCOMES

→ Possibility of **assessment of bone quality** together with visualization of CBCT may contribute to the intraoperative prediction of the implant primary stability

→ Predictable angulation and positioning during surgery to support fit of prefabricated restoration in multi units

WHAT'S IN IT FOR YOU?

ENABLER FOR IMMEDIACY

Efficiency is important. Straumann® Falcon offers unique features benefiting clinicians and patients.

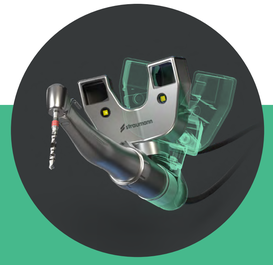
FEATURES

→ Same surgery kit as **freehand** (no need for guided kit)

→ **No** need for planning and producing of the marker prior to surgery (with selected workflow)

→ **3D** assessment of the surgical field (no interruption in surgery for validation)

→ Predictability edge compared to freehand due to preop planning



BENEFITS

→ No need to **rely** on guide manufacturing process

→ **Uninterrupted** surgery due to live visualization and no need to break to check images

→ Ability to change plan, to **adapt** to clinical situation, during surgery

→ **Choose** most suitable marker position based on clinical situation

OUTCOMES

→ Cost efficiency when workflow is optimized

→ Same day planning and surgery possibility

→ Potential of reduced number of visits

WHAT'S IN IT FOR YOU?

POWERFUL VISUALIZATION

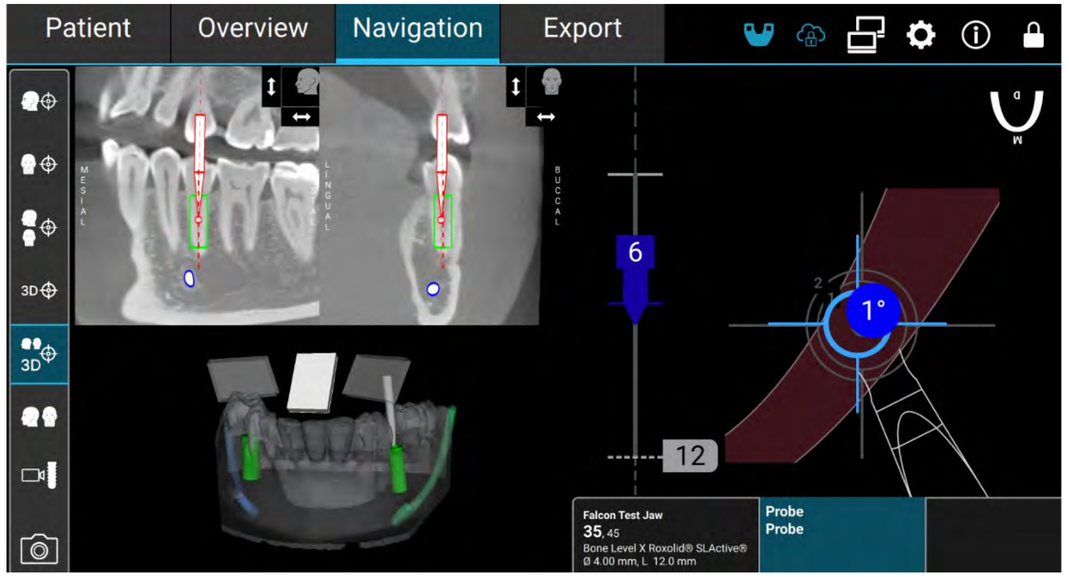
Boost clinician confidence

→ Assessment of surgical environment in 3D & visualization of precise location of the instruments in surgical field in **real time**

→ Improved visualization compared free hand during surgery to **avoid** critical anatomical structures

→ **Predictability** advantage over freehand through pre-op planning and on-schedule execution in support of immediate treatment

Straumann® Falcon



WHAT'S IN IT FOR YOU?

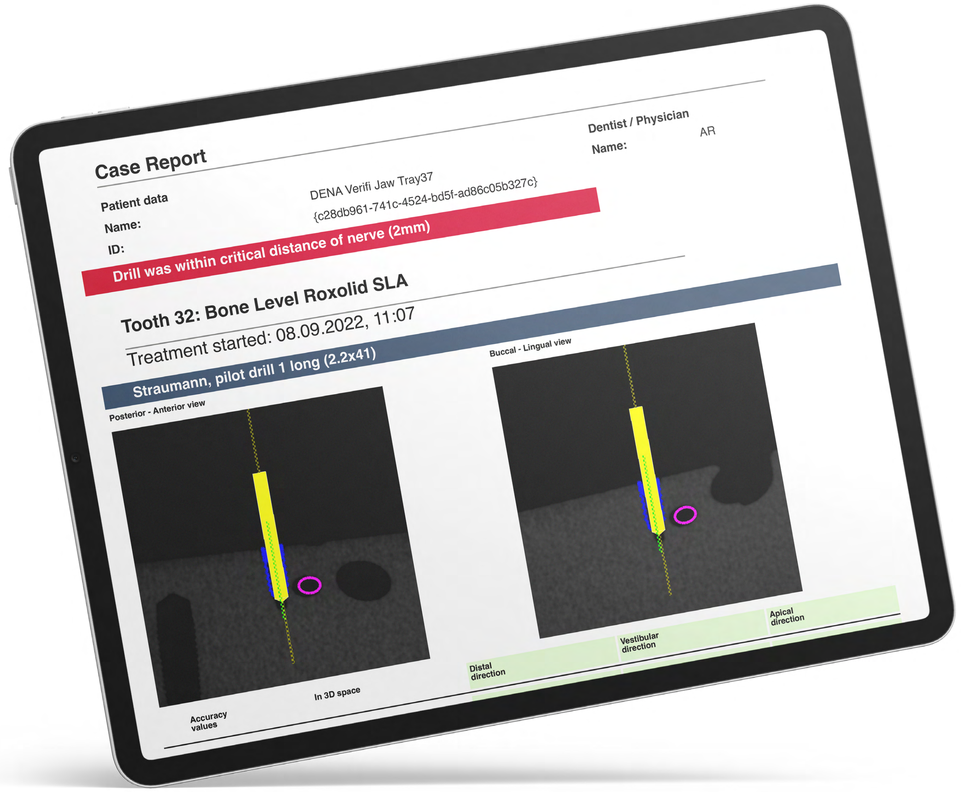
STANDARDIZATION OF DOCUMENTATION OF CASES

Get clinical and business insights

→ Clear documentation of the surgery to ensure that planning and execution are aligned

→ Standardization of presentation of case reports

→ Tracking progress and case data along the implant practice journey for continuous learning and optimization



WHAT'S IN IT FOR YOU?

FLEXIBILITY DURING SURGERY

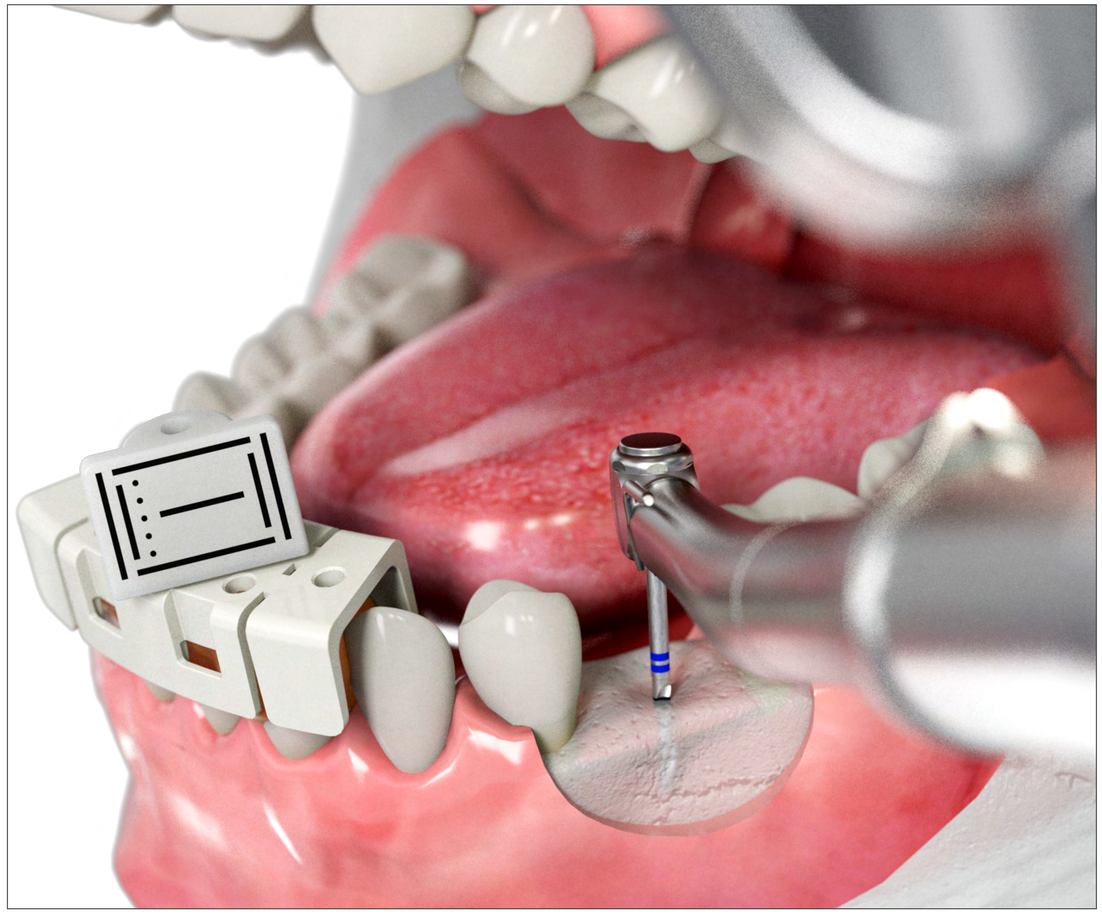
Adapt to clinical situation

→ Proactively adapt to the clinical situation vs. what was initially planned

→ Freedom to choose from Straumann Group implant brands

→ Combining advantages of freehand and guided surgery

→ Choose optimal marker position during surgery



WHAT'S IN IT FOR YOU?

ENABLED MOBILITY AND SPACE SAVING

Adapt to clinical situation

→ Offer space-saving miniaturized design

→ Ensure minimum occupation in the clinic

→ Move where you need to

Straumann® Falcon

*Glasses and motor are not part of the system and must be purchased separately.

WHAT'S IN IT FOR YOU?
WORKING EFFICIENTLY

Adapt to clinical situation

→ Reduced time spent on planning vs. guided surgery (no guide production in selected workflows)

→ No recalibration prior to surgery if the same handpiece is used

→ Surgical planning can be exported seamlessly from coDiagnostix® planning SW directly to Falcon via network

→ No need of planning the marker prior to surgery (in selected work-flows)

WHAT'S IN IT FOR YOU?

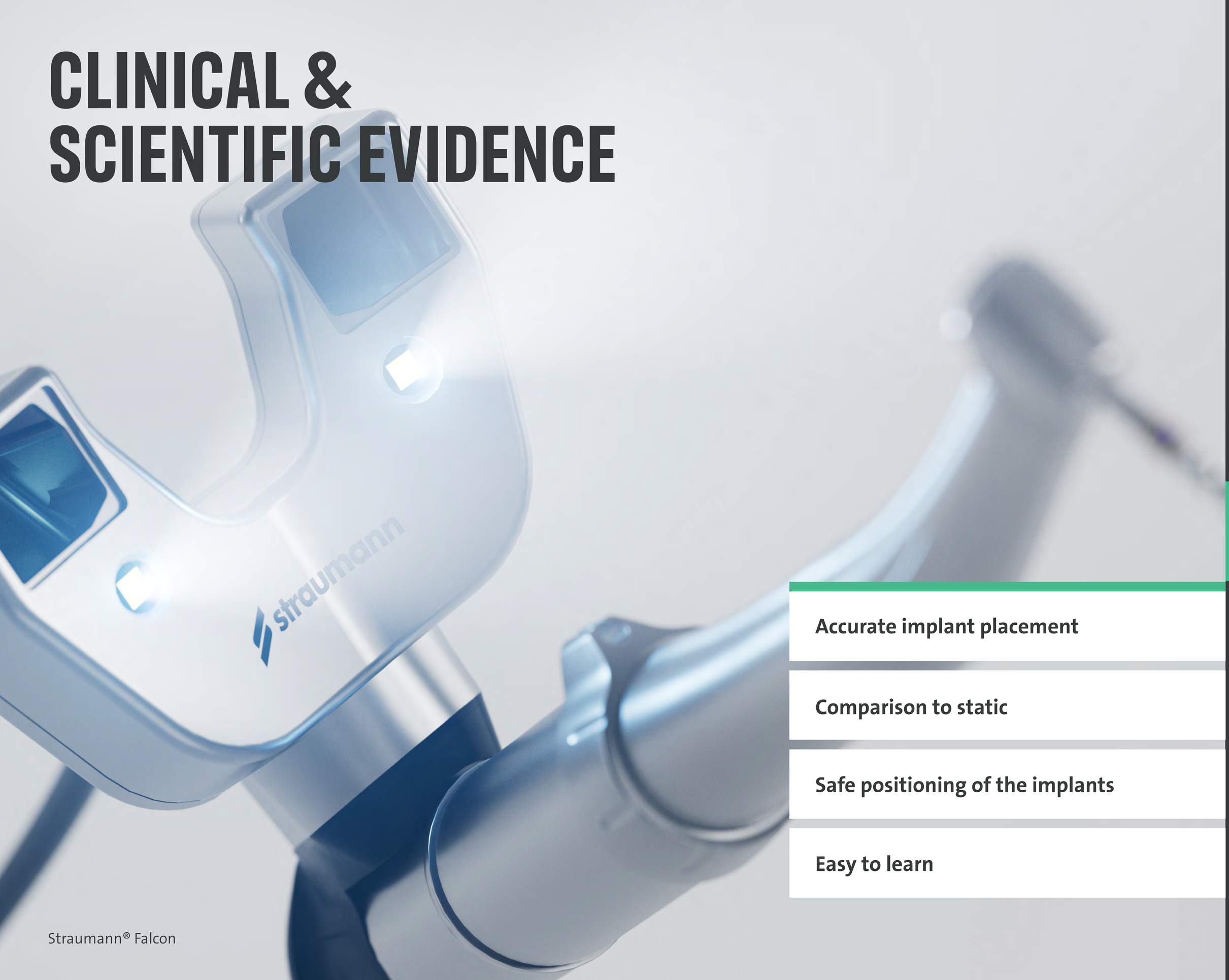
PREMIUM PRACTICE DIFFERENTIATOR

Create excitement by using state-of-the-art technology

→ Designed to reduce the risk of harm to your patient

→ Help the clinic to engage patients

CLINICAL & SCIENTIFIC EVIDENCE



Straumann® Falcon

- Accurate implant placement
- Comparison to static
- Safe positioning of the implants
- Easy to learn

CLINICAL & SCIENTIFIC EVIDENCE

ACCURATE IMPLANT PLACEMENT

Comparable with static guided approach

120 implants (BLT 3.3 mm/10 mm – region 45 (premolar) – BLT 4.1 mm/10 mm – region 47 (molar) placed in the partially edentulous artificial lower jaw)

2.88 ± 2.03°

The mean
angular deviation

1.53 ± 0.70 mm

The mean 3D deviation
at the implant shoulder

(mean ± SD)

"The in vitro examination showed that precise implantation is possible with the dynamic navigation system used in this study. The results are of the same order of magnitude that can be achieved using static navigation methods."

Full-text PDF

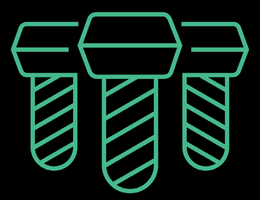
Straumann® Falcon

Schnutenhaus S et al. Int J Environ Res Public Health. 2021 Mar; 18(6): 3244

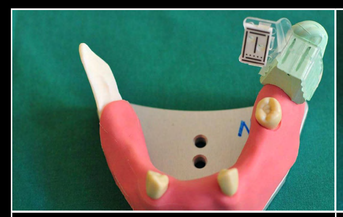
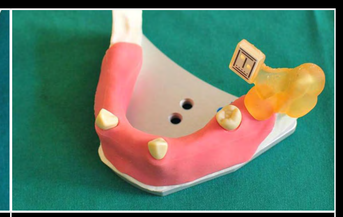
CLINICAL & SCIENTIFIC EVIDENCE

COMPARISON TO STATIC

Navigation system is comparable with the accuracy of a pilot-drill guide



Straumann BL
4.1 mm/10 mm

	 MARKER TRAY ON (MTC)	 PILOT-DRILL GUIDE (3DPT)	 3D-PRINTED MAKER TRAY ON (PDG)
Total deviations at the implant entry point	1.024 ± 0.446 mm	1.027 ± 0.455 mm	1.009 ± 0.415 mm
Mean total deviations at the implant apex	1.026 ± 0.383 mm	1.116 ± 0.530 mm	1.068 ± 0.384 mm
Angular deviation	2.22 ± 1.54°	1.95 ± 1.35°	2.67 ± 1.58°

“The accuracy of the evaluated navigation system was similar to the accuracy of a pilot-drill guide or other reported navigation systems. The accuracy (...) was reliable enough for clinical use.”

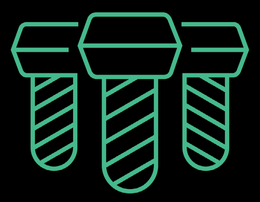
Full-text PDF

Straumann® Falcon

Spille J et al. Int J Implant Dent. 2021 Dec; 7: 45.

CLINICAL & SCIENTIFIC EVIDENCE

SAFE POSITIONING OF THE IMPLANTS



20 implants (iSy, Camlog, Wimsheim, Germany) were placed in patients' jaws

2.7°

The mean
angular deviation

1.83 mm

The mean 3D deviation
at the implant shoulder

(mean ± SD)

"The procedure allows safe positioning of the implants in minimally invasive procedures, which usually cannot be performed freehand in this form."

Full-text PDF

Straumann® Falcon

Edelmann C. et al. J Clin Med. 2021 May; 10(9): 1808

CLINICAL & SCIENTIFIC EVIDENCE

EASY TO LEARN

Young professionals can rapidly acquire the skills needed for navigated dental implant surgery

10 students → 2 sessions → 160 implants

	TOTAL ERROR AT BASIS	TOTAL ERROR AT APEX	ANGULAR ERROR
1st session	1.80 ± 0.93 mm	2.02 ± 0.88 mm	2.51 ± 1.48 mm
2nd session	1.61 ± 0.81 mm	1.56 ± 0.70 mm	1.51 ± 0.82 mm

(mean ± SD)

"Navigated surgical dental implant placement can be learned quickly and can support young professionals in everyday clinical practice, especially in challenging anatomic situations."

Full-text PDF

Straumann® Falcon

Spille J. et al. Dent. J. 2022, 10(10), 187.

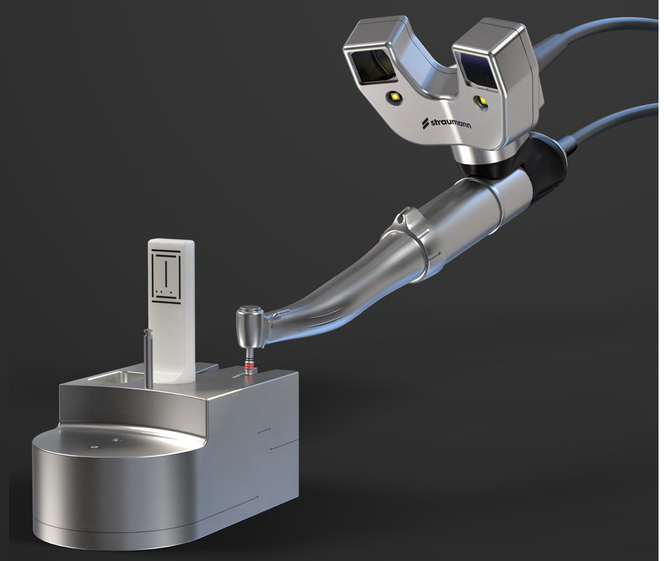
CLINICAL CASES

Dr. Kay Vietor

Single molar (36) type 4 indication with conventional loading

Straumann® Falcon

Dr. Kay Vietor



Straumann® Falcon

CLINICAL CASES

SINGLE MOLAR (36) TYPE 4 INDICATION WITH CONVENTIONAL LOADING

Meet the expert

→ Private practice for oral surgery and implantology in Langen, Germany
→ Postgraduate education and degree in Oral Surgery
→ ITI-Fellow
→ Lecturer and author on CAD/CAM implant prosthetics and customized implant-borne prosthetic solutions, implant dentistry, intraoral scanning and digital workflow
→ Static and dynamic computer-aided implant surgery
→ Scientific advisory board ITI Curriculum Digital

CLINICAL CASES

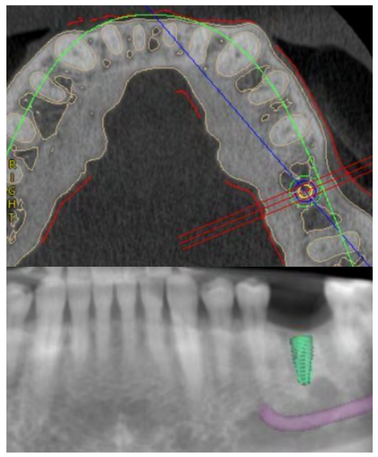
SINGLE MOLAR (36) TYPE 4 INDICATION WITH CONVENTIONAL LOADING

Patient information

Gender	M
Age	56
Jaw	Mandible
Health status	High blood pressure/medication: beta-blockers
Bone type	D3
Local infection	None
Anatomical defects	Slightly horizontal and vertical bone loss after extraction
Risk factors	None

Initial situation

Intraoral initial situation



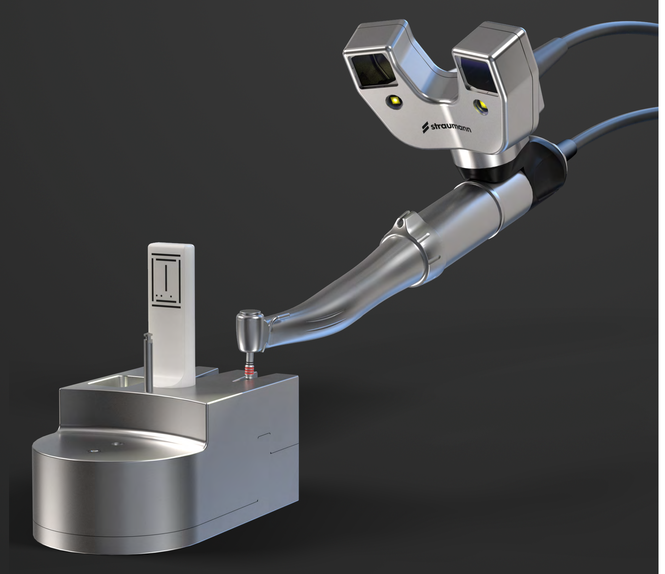
CBCT shows initial condition

Treatment planning

→ Straightforward case for a single implant type 4 indication with conventional loading was planned
→ Implant placement was planned with “Falcon” dynamic navigation using Smile in a Box®
→ One Bone Level Tapered Implant BLT diameter 4,1/12mm SLActive® Roxolid® was placed
→ Individual healing abutment produced by Smile in a Box® was inserted immediately after surgery
→ Final restoration was produced 8 weeks post-surgery with digital workflow
→ Fully zirconium crown on Variobase® was inserted in a second prosthetic appointment

Straumann® Falcon

Dr. Kay Vietor



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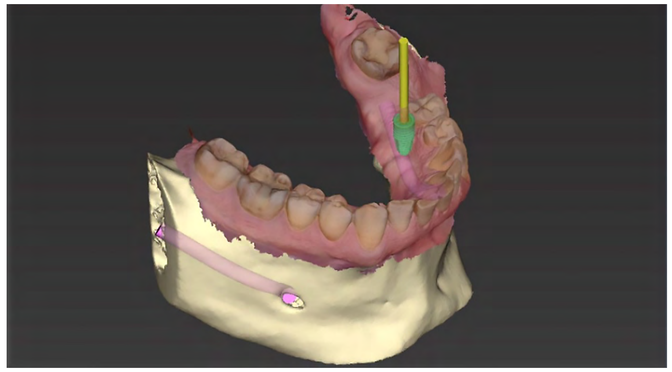
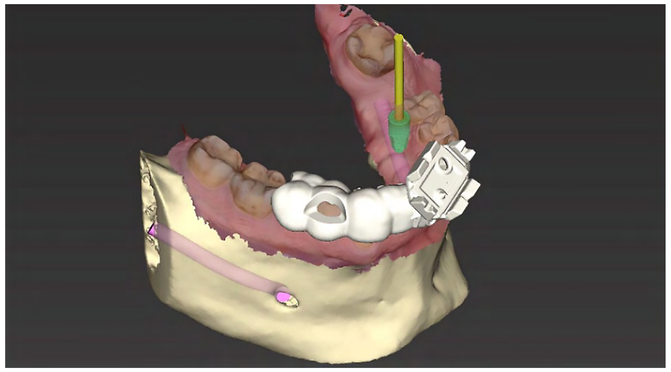
CLINICAL CASES

SINGLE MOLAR (36) TYPE 4 INDICATION WITH CONVENTIONAL LOADING

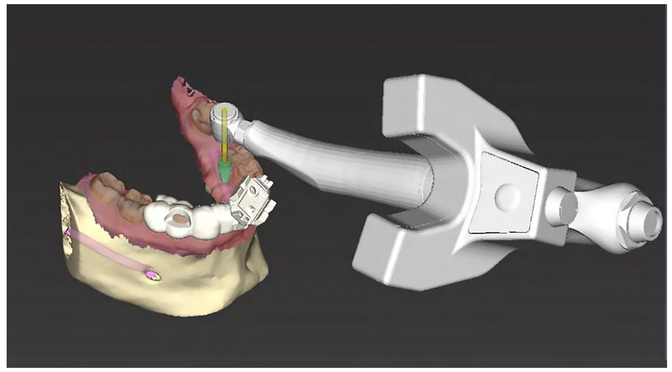
Initial STL



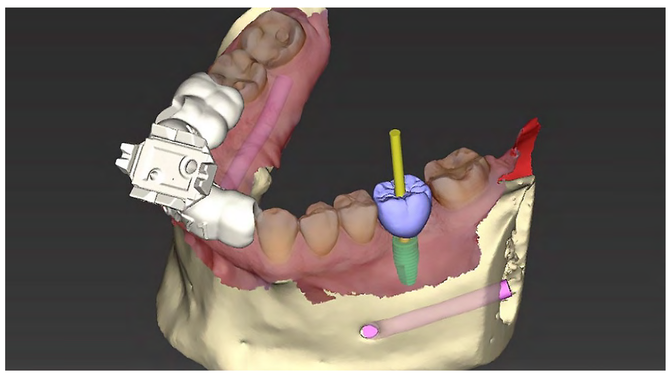
Implant planning with coDiagnostiX® and Smile in a Box®



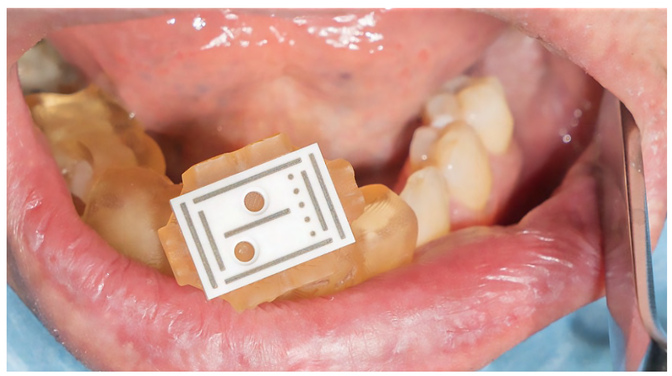
Digital Tray design with coDiagnostiX® and Smile in a Box®



Marker position planning with coDiagnostiX® and Smile in a Box®

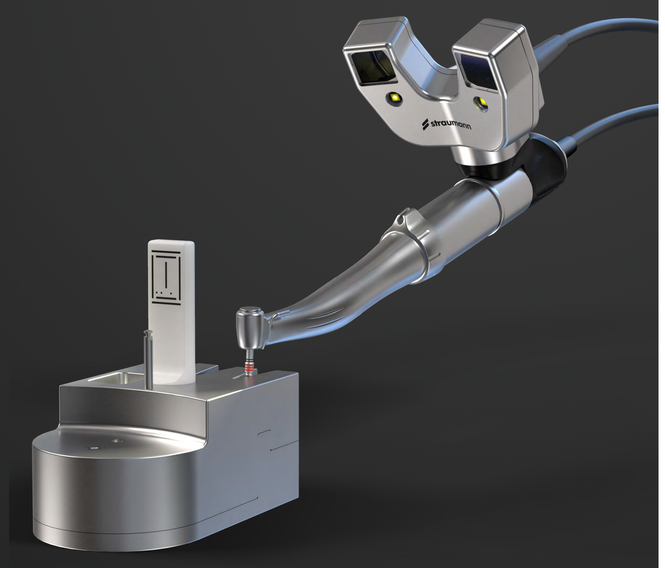


Provisional planning with coDiagnostiX® and Smile in a Box®



Digital tray with marker in position

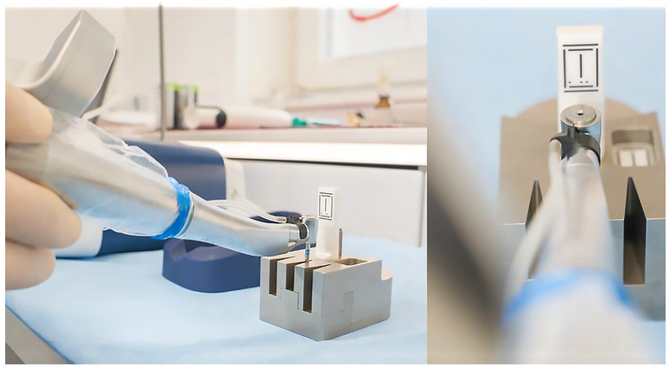
Dr. Kay Vietor



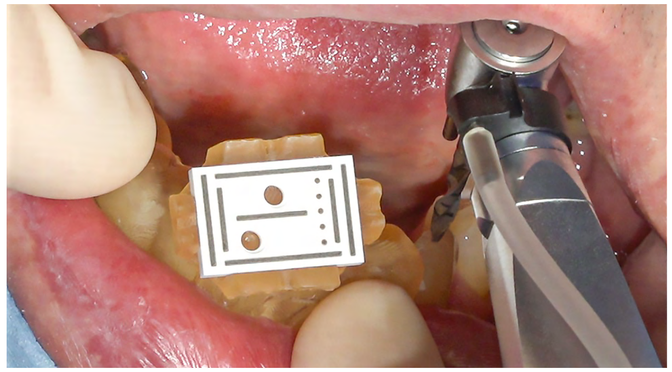
Straumann® Falcon

CLINICAL CASES

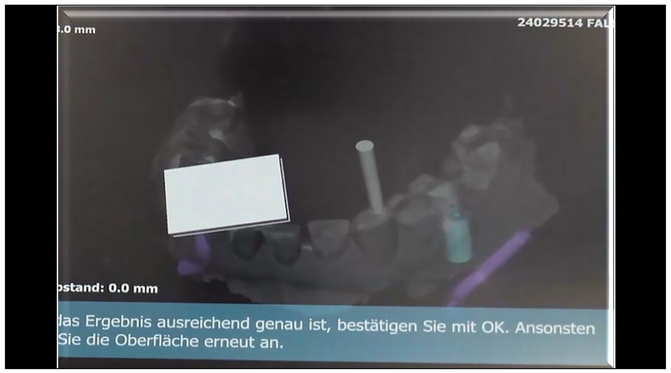
SINGLE MOLAR (36) TYPE 4 INDICATION WITH CONVENTIONAL LOADING



Drill registration

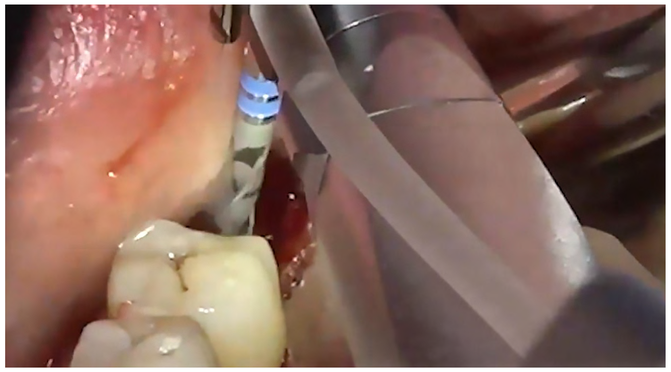


Accuracy Check

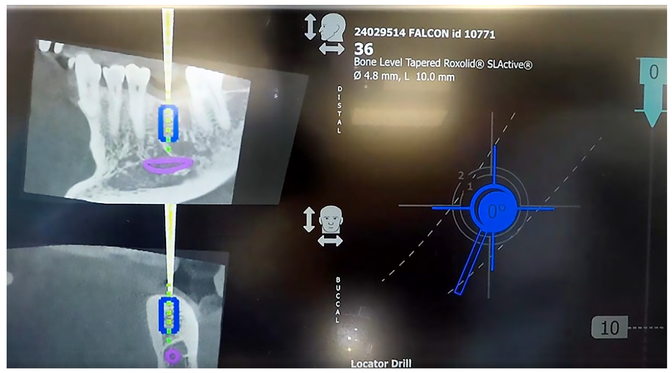


Accuracy Check

Flap elevation

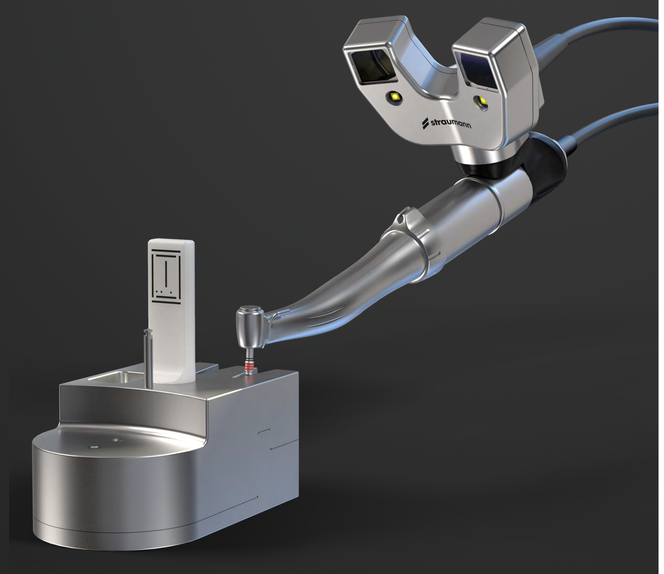


Precise implant bed preparation



System view during starting drilling

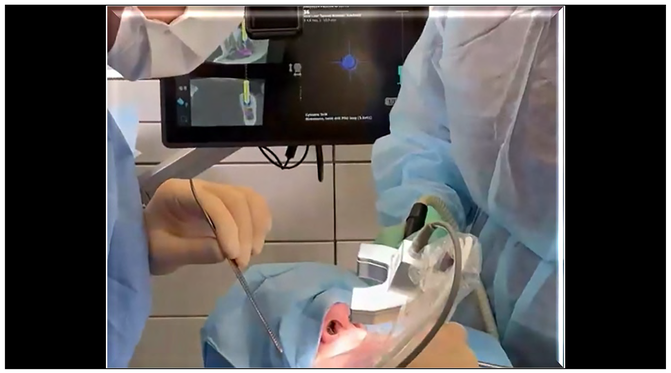
Dr. Kay Vietor



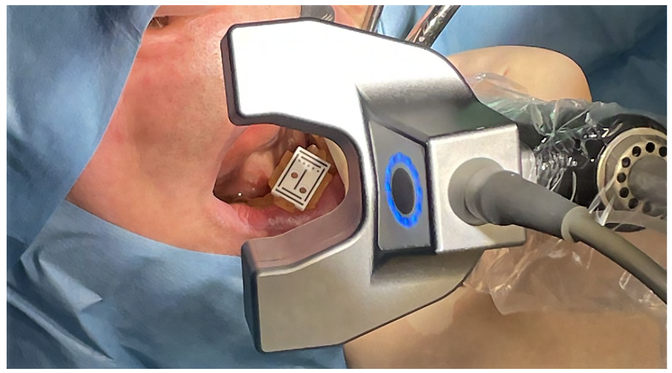
Straumann® Falcon

CLINICAL CASES

SINGLE MOLAR (36) TYPE 4 INDICATION WITH CONVENTIONAL LOADING



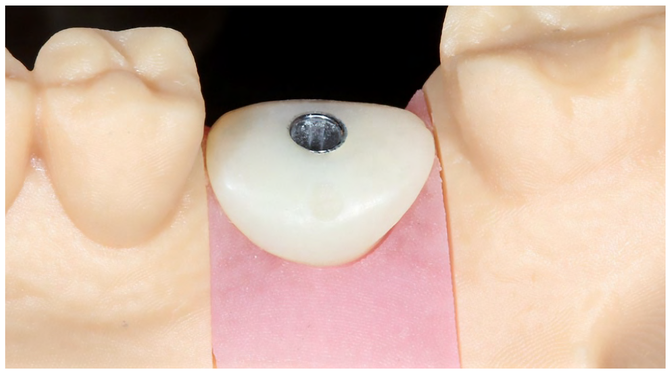
Implant bed preparation



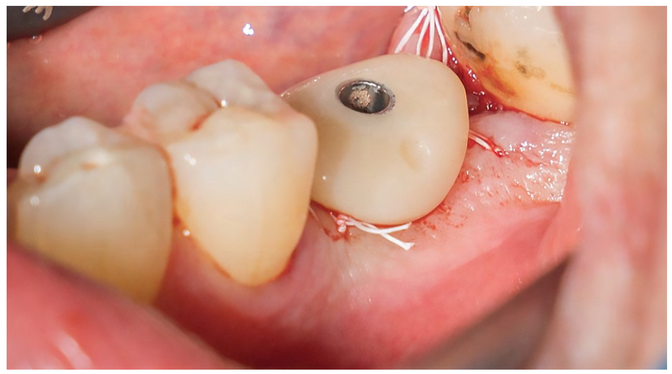
Camara in direct view to the marker

Alignment pin placed to check the 3D position of the osteotomy and preparation depth

Implant in final position



Customized healing abutment



Customized healing abutment in position

Dr. Kay Vietor

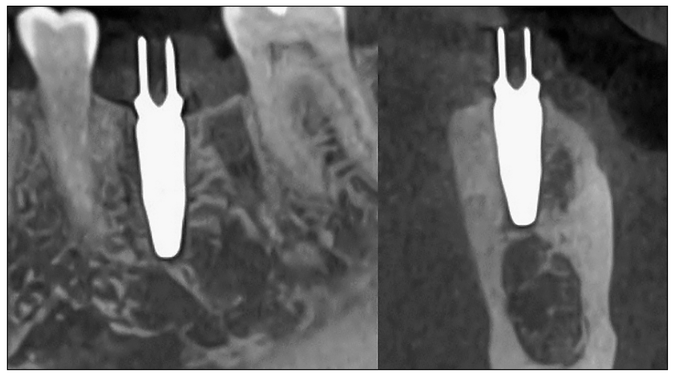
“Falcon system is a great tool for my everyday implants in regard to be able to have a free view to the surgical field all the time comparable to free-hand surgery but with an improved accuracy compared to freehand approach. Even if I have to change the plan during surgery, I can stay under full control of the anatom-ical structures and will increase the predictability of the treatment outcomes.”

Dr. Kay Vietor

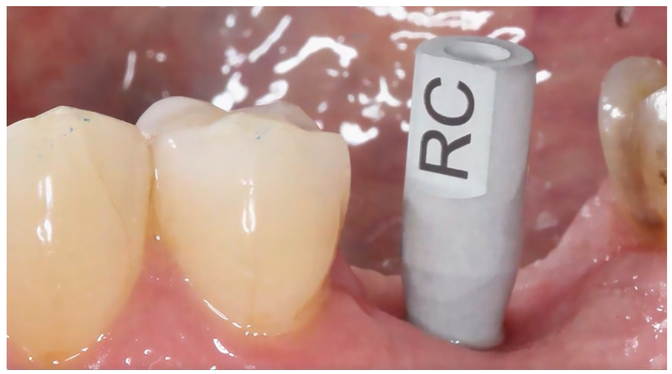
Straumann® Falcon

CLINICAL CASES

SINGLE MOLAR (36) TYPE 4 INDICATION WITH CONVENTIONAL LOADING



Radiographic control after surgery



Metal scanbody for intraoral scanning

Before

Provisional restoration

TECHNICAL INFORMATION

Straumann® Falcon

TECHNICAL INFORMATION

STRAUMANN® FALCON BRINGS AN UNPRECEDENTED SIMPLICITY AND ERGONOMY

TOUCH SCREEN ALL-IN-ONE COMPUTER WITH REAL-TIME, DYNAMIC NAVIGATION SOFTWARE

SMALL, MOTOR-MOUNTED CAMERA

OPTIONAL SMART GLASSES

MINIATURIZED PATIENT MARKERS

Surgical motor and glasses not included in the system and must be purchased separately.

TECHNICAL INFORMATION

OPTICAL CAMERA PLACED ON THE HANDPIECE WITH SPECIAL ADAPTER

Dimensions:
75 × 56 × 54 mm

Weight:
180g

Technical features

→ The camera contains the optical device (stereo camera) which captures the pattern of the marker. In addition, two LED lights are integrated into the housing. These LED lights can be activated via the button in the middle of the housing.

→ The button includes a light circle. When the camera is connected properly to the system, the light is orange. If the camera detects a marker, the light turns blue.

Straumann® Falcon

The camera is attached to the handpiece motor using the adapter and connected to the computer via the USB cable.

Easy to attach and remove to the handpiece via magnets.

+ 90°/-90°

Different camera positions for optimal grip **flexibility** and visibility.

TECHNICAL INFORMATION

ALL-IN-ONE COMPUTER – DEDICATED MEDICAL GRADE COMPUTER

Dimensions:
406 × 274 × 61 m

Weight:
4.8 kg

Technical features

→ Linux based system with preinstalled navigation software

→ Intel® Core ™i7 11th gen, 512Gb SSD, 16Gb Ram

→ 15.6 inch full HD display

→ Wifi module integrated

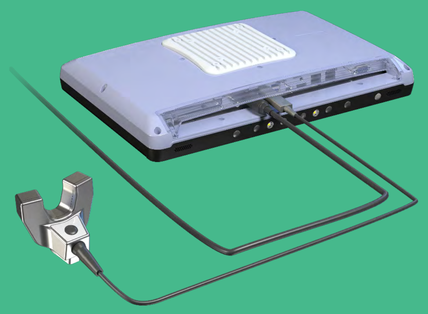
→ Available connections:

- 4 × USB 3.2
- 1× USB type C
- 1× HDMI
- 1× ethernet

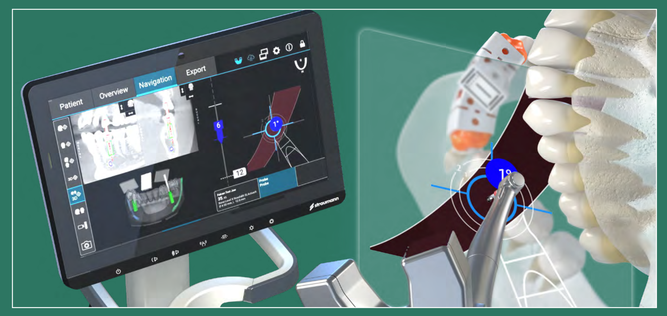
Medical CE,
FCC (IEC 60601-1-2, 4th edition)
EN 60601-1 Compliance
UL 60601-1

VESA standard for easy **installation** on most common carts and stands.

Straumann® Falcon



Fanless technology for **higher** level of **hygiene.**



Can be used **with gloves.**
Protective **sterile foil** available.

No mouse or keyboard necessary.

TECHNICAL INFORMATION

REGISTRATION TOOL USED FOR DRILL REGISTRATION DURING SURGERY

Made of stainless steel and zirconia.

Technical features

→ Three **tapered slots** for different **cylindrical drills**

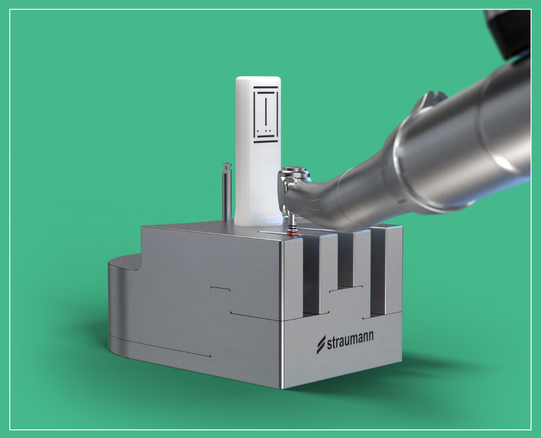
→ A **conical cavity** for different **round bur** diameters

→ A deepening with **cross marking** for **locator drills and taps**

→ A centrally positioned marker

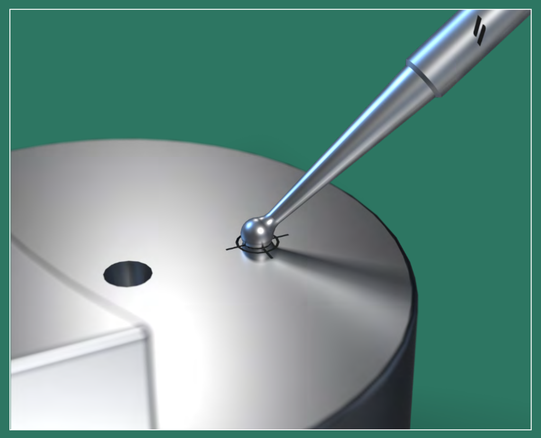
→ Two pieces design: base plate, attached by a magnet

→ Fully autoclavable



Straumann® Falcon

Fast drill registration.



Dedicated section for Straumann® probe.

TECHNICAL INFORMATION

CALIBRATION TOOL – CALIBRATION OF THE SYSTEM WITH USED COMPONENTS

Made of POM Copolymer.

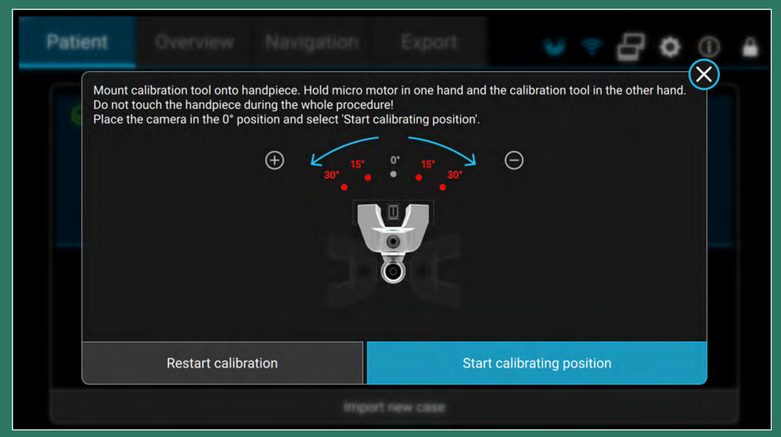
Technical features

The calibration tool is needed to calibrate the used components (camera, adapter, micro-motor, handpiece).

It is composed by the core part hosting 3 marker patterns, embedded in an external housing.

Straumann® Falcon

Self-calibration by user possible.



Intuitive step wise calibration workflow.

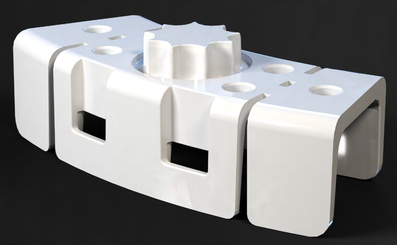
TECHNICAL INFORMATION

MARKER AND TRAY – SURGICAL REFERENCE POINT FOR THE CAMERA

Edentulous tray

Made of metal.

Impression tray



Made of Lexan™ copolymer.

Made of resin, 3D printed

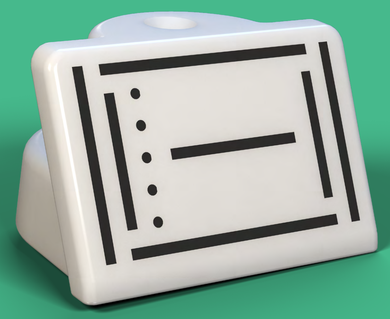
Technical features

→ The trays hold the marker for Straumann® Falcon and are fixed to the lower or upper jaw by means of screws, impression material or directly on the teeth

→ The tray is a single patient use product and must be disposed after each patient

→ Mounted on a tray, the marker serves as a reference point for the navigation system in the lower or upper jaw of the patient

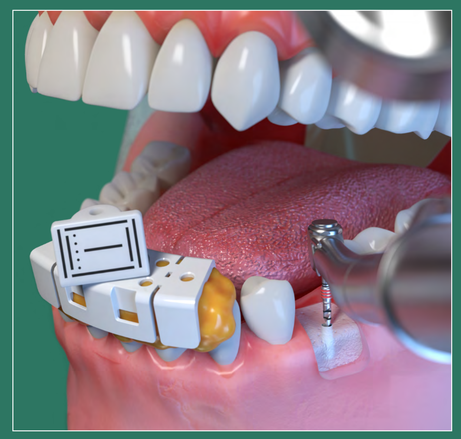
→ Prefabricated and custom-made marker/tray workflow options



Small marker.

Pattern recognition based on b/w contrast.

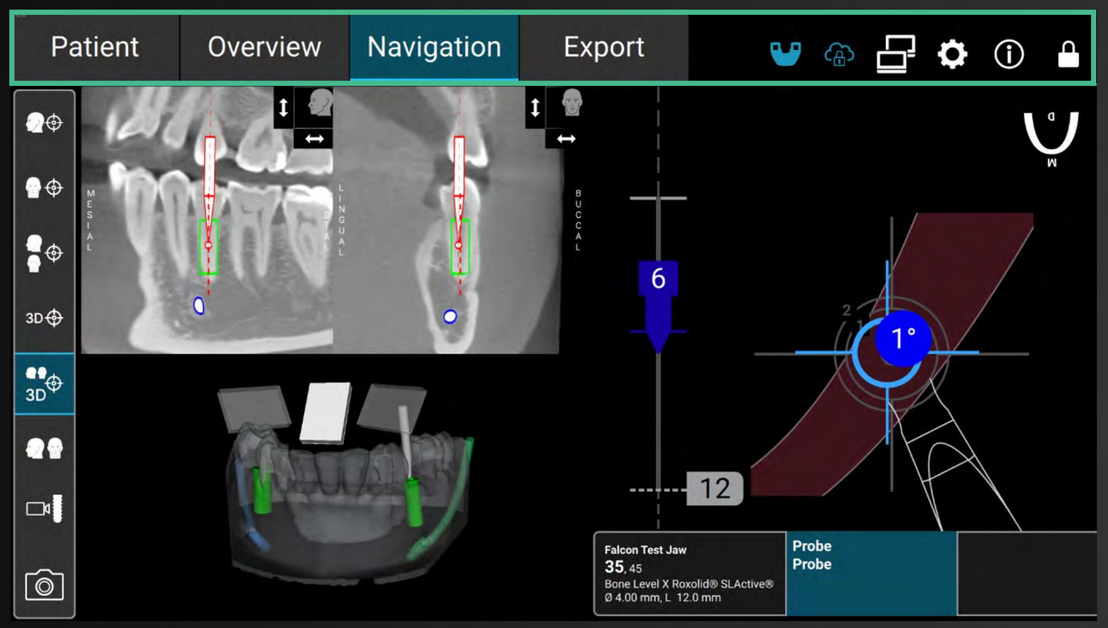
Made of Lexan™ copolymer.
Straumann® Falcon



Multiple marker positions based on case. Order prefabricated or design in coDiagnostix®.

TECHNICAL INFORMATION

SOFTWARE – EASY USER INTERFACE WITH FULL VISUALIZATION OF DRILL PROTOCOL

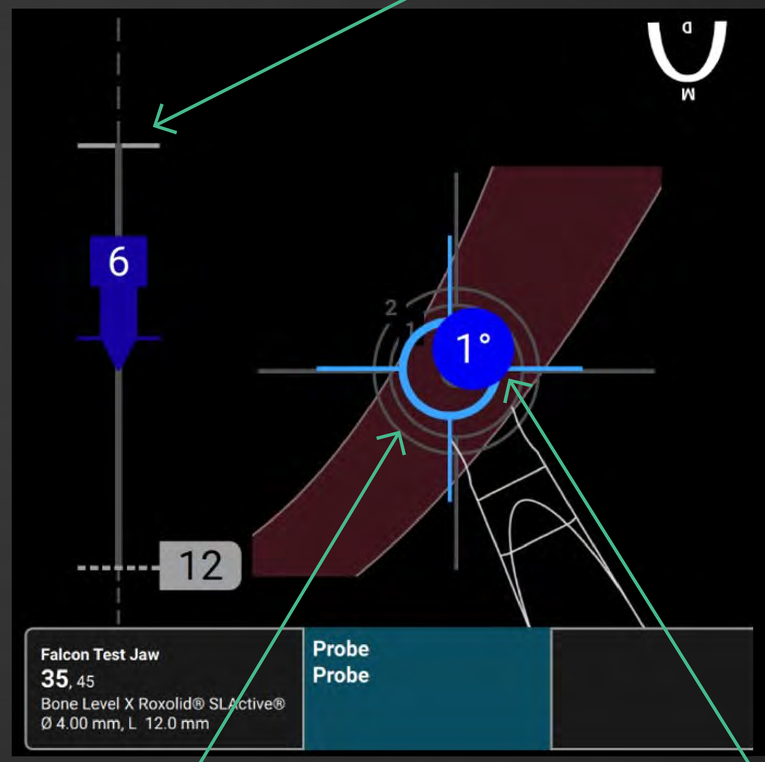


→ The user interface guides you step by step through the different stages of the surgery

→ **Patient** selection → **Overview** (CBCT view together with the marker(s) → **Navigation** (surgery) → **Export** (report)

→ The surgery performed with the different drills is guided with 3 indicators: **the position, the angulation and the depth** of the future implant(s)

3 key indicators for a successful osteotomy



Blue indicator means aligned with planning

Straumann® Falcon

TECHNICAL INFORMATION

EPSON MOVERIO BT-45C

SMART GLASSES

Maintain a natural and comfortable posture during surgery

Keep your hands free and maintain situational awareness

Compatible with Straumann® Falcon

EPSON®

Straumann® Falcon

TECHNICAL INFORMATION

EPSON MOVERIO BT-45C COMPATIBLE WITH STRAUMANN® FALCON

→ **Outstanding visual quality.** Full HD display equivalent to viewing a 120" screen from a distance of 5 m, details are exceptionally crisp and clear.

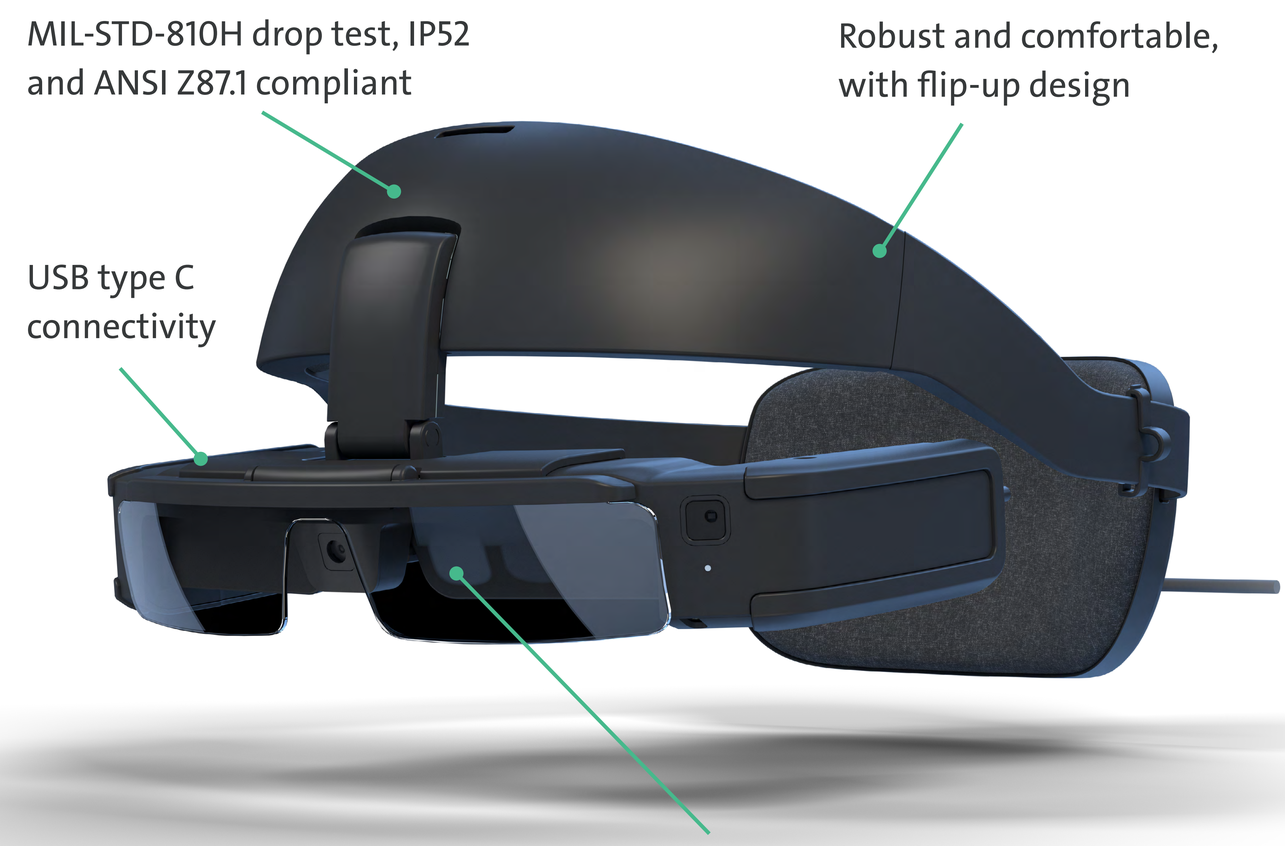
→ **Hands-free, wearable display.** With flip-up design for when the display is not in use.

→ **Rugged but comfortable** A highly robust yet comfortable design with over-the-glasses support.

→ **Simple and flexible connectivity.** Connects to compatible USB Type-C[2] devices with a single cable.

→ **Proven durability and safety.** MIL-STD-810H drop test[1], IP52 and ANSI Z87.1 compliants.

Hands-free wearable display

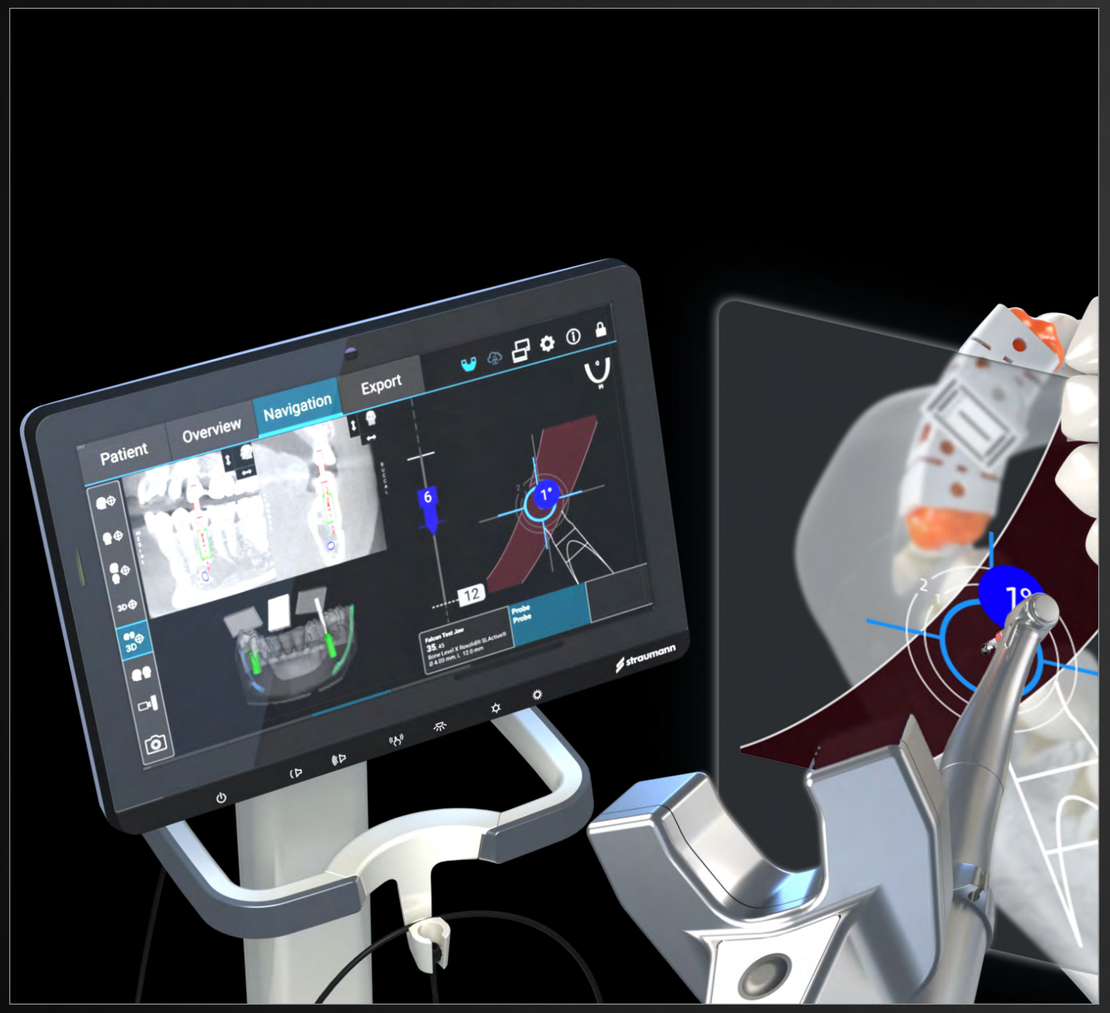


EPSON®

Straumann® Falcon

TECHNICAL INFORMATION

EPSON MOVERIO BT-45C SMART GLASSES VIEW



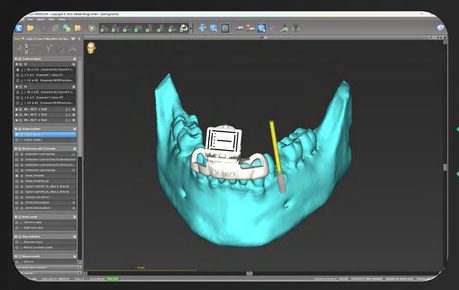
Straumann® Falcon

TECHNICAL INFORMATION

TWO DIFFERENT WORKFLOWS TO CHOOSE FROM

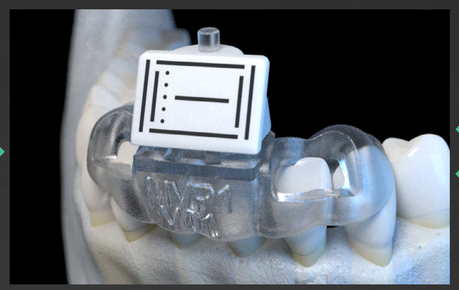
PLANNING-BASED MARKER LOCALIZATION (only Smile in a Box®)

Data acquisition



Smile in a Box® **plans** implant and **marker positio**n, designs a tray

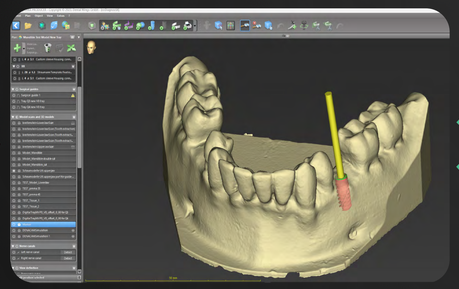
Smile in a Box® prints a tray. The case is sent to Falcon, the tray and the marker to the customer



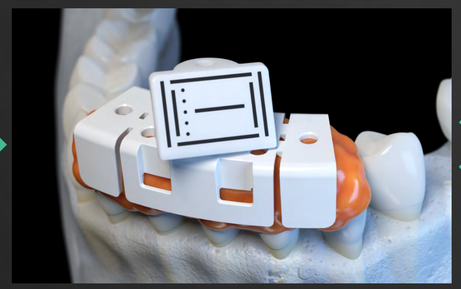
Customer fixes tray with marker **on patient's mouth**

Surgery is performed

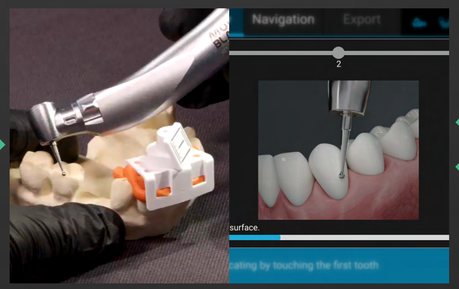
TEETH SURFACE-BASED MARKER LOCALIZATION



Customer/Smile in a Box® **plans** implant position in **coDiagnostix®** and sends case to Falcon



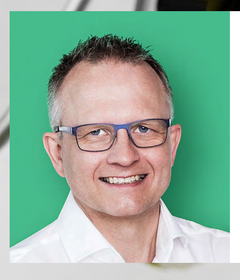
Customer fixes stock tray with marker on patient's mouth



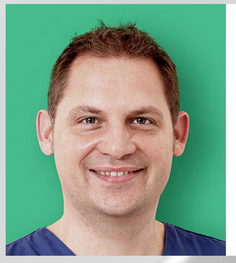
Marker position is tought to system using existing landmarks (e.g., teeth)

Surgery is performed

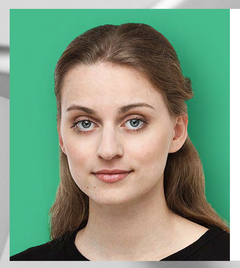
WHAT EXPERTS SAY



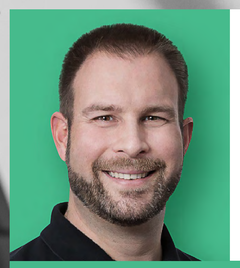
Dr. Kay Vietor



PhD Dr. Dr. Christian Naujoks



Dr. Maja Chmielewska



Dr. med. dent. Tim Nolting

Straumann® Falcon

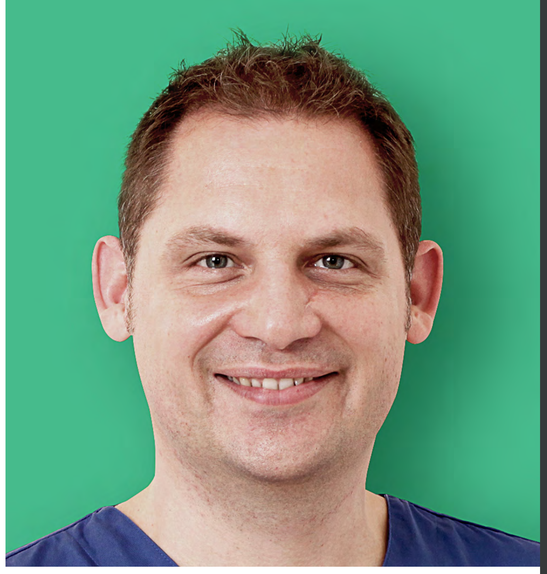
WHAT CUSTOMERS SAY

Dr. Kay Vietor

“Straumann® Falcon gives me the advantages of guidance with full visibility and control of my surgical area.”

Straumann® Falcon

WHAT CUSTOMERS SAY

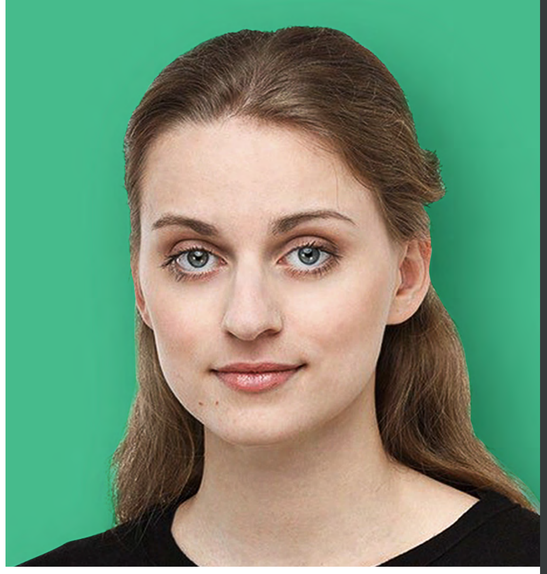


PhD Dr. Dr. Christian Naujoks

“Straumann® Falcon gives me flexibility during guided surgery and gives me security through visual feedback.”

Straumann® Falcon

WHAT CUSTOMERS SAY



Dr. Maja Chmielewska

“Guided surgery with Straumann® Falcon means same-day surgery for your walk-in patients and portability, for your convenience.”

WHAT CUSTOMERS SAY

Dr. med. dent. Tim Nolting

“Straumann® Falcon gives me the full potential of free-hand implantology assisted by the insights of an intuitive 3-dimensional dynamic guidance.”

Straumann® Falcon

SUMMARY

NAVIGATE THROUGH THE INVISIBLE

Do what you plan, see what you do, show how you did it

→ Visualize precise location of instruments in surgical field

→ Avoid critical anatomical structures

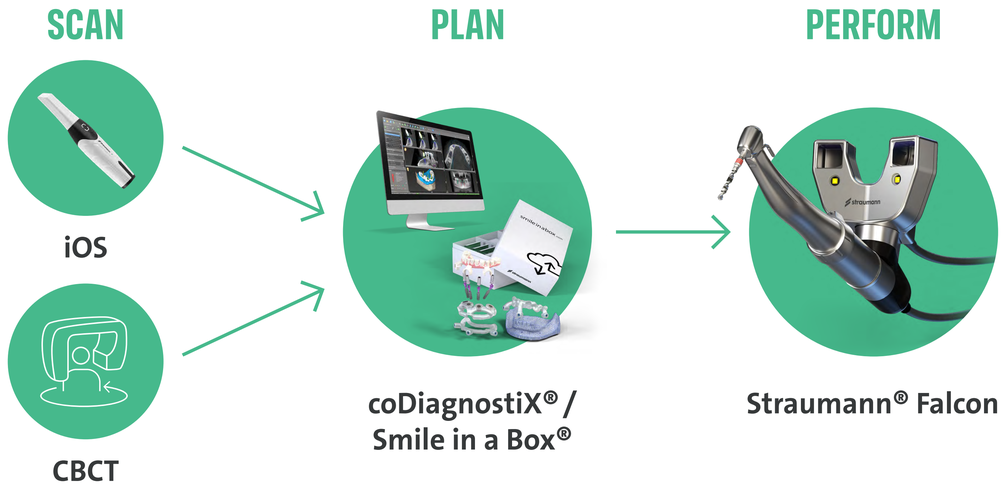
→ Benefit from a miniaturized and ergonomic solution

→ Enjoy flexibility to adapt live to clinical situation

→ Collect clinical and business insights

→ Perform single, multi and edentulous cases

→ Feel the bone and soft tissue during surgery



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