The Smarter Vision
Image Guided Surgery

excellence
innovation

A history of excellence and innovation

meaningful innovation

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The Stryker Navigation System

The Stryker Navigation System provides you with a system that works day in and day out. Reliability is assured by the experienced Stryker engineering teams that have complete design and manufacturing control over the critical components of the system. The system is easy to set up, just plug in, push the on button, and go. Remote software control reduces time and confusion with system operation while increasing the information available to the surgeon.

- **Wireless Smart Instruments**
  The first instrumentation developed specifically for image guided surgery. Leibinger, with 130 years in neurosurgical instrumentation, combines with Stryker’s expertise in building electronics that withstand the extremes of sterilization to create the first Smart image guided instrumentation.
  - Active LED’s for increased accuracy
  - Automatic instrument identification
  - Self-diagnostic check

- **Wireless Software Control**
  Software control from the handpiece gives the surgeon control of the patients image data. An assistant is not required to run the system controls during the operation. Features such as automatic image fusion, functional planning, atlas correlation, multiple stereotactic frame support, and automatic fiducial registration are included in the standard software package.

- **2-Way Communication**
  Continuous 2-way communication between smart instruments and the system assures accurate instrument identification and surgical navigation.

- **Calibration Tool**
  Calibrate straight and angled instruments with both point and instrument axis calibration. The “calibration tool” sends the tool geometry to the navigation system and then on to the tracked instrument.

- **Laptop System**
  With the Laptop System you can review your cases conveniently prior to the surgical procedure. The large mass associated with most navigation systems is eliminated while complete system performance is maintained. The cordless smart technology simplifies setup and eliminates cables that clutter the operative site.

- **Smart Camera**
  The Stryker Navigation Smart Camera is truly unique in the image guided world for its unsurpassed accuracy. The smart camera permits two way communication between the wireless instrumentation and the navigation system. Remote software control eliminates the need for the surgeon to touch surfaces outside of the operative site such as touch screen controls.

- **Axis Calibration**
  Continuous 2-way communication between smart instruments and the system assures accurate instrument identification and surgical navigation.

- **Point Calibration**
  Continuous 2-way communication between smart instruments and the system assures accurate instrument identification and surgical navigation.
The Stryker NavSuite™ offers the greatest amount of freedom and flexibility available to a surgeon and hospital staff. The NavSuite™ allows for the localizer camera and flat screen monitor to be ceiling mounted via a small boom, eliminating the cart and freeing up floor space in the O.R.

**NavSuite™ Features**

- Precise camera positioning for best accuracy and line of sight
- Better viewing with flexible monitor placement
- Improved set-up and turnover time

The NavSuite™ fully integrates with the Stryker EndoSuites™ for greater flexibility and standardization of equipment.
The Stryker Navigation Neuro Module is a complete software package for all neurosurgical procedures. Standard features of the neuro module include functional software, the Talairach and Schaltenbrand Atlas data sets, image fusion software as well as complete stereotactic frame based planning.

Special tools such as the Frameless Guide System for frameless biopsies make Stryker Navigation the most complete neuro module available.

**Software Features**

- **Pre-op**
  - Functional planning
  - Planning for all major stereotactic frame systems

- **Advanced Image Display**
  - Image fusion
    - CT/MRI
    - ANGIO
  - Atlas
    - Talairach
    - Schaltenbrand
  - Video display

- **Intra-op**
  - Software control from wireless smart neuro instruments

**FGS Frameless Guiding System**
- Frameless biopsy made easy with the Frameless Guiding System.
- Wireless smart instrumentation make setting trajectory and depth accurate and fast.
- Virtual tip advancement from instrument is another feature of the Stryker Navigation System.

**When accuracy counts...** Navigation image (at left) shows superb agreement with the intra-operative photo (at right) depicting the basilar artery near the base of the brain stem.
No one has more experience with microscope navigation. Stryker Leibinger has been involved with microscope navigation since the early 1990’s. Stryker Leibinger now offers microscope navigation utilizing Strykers’ Smart Technology. The software control options are displayed clearly in the microscope field of view.

Menu selections are easy with the button-controls from the microscope or wireless smart instrumentation. The surgeon no longer has to look away from operative site.

Software Features

- **System Setup**
  - Interactive tools such as camera and microscope display increase speed of system set up and help insure system accuracy.

- **Intra-op**
  - Complete software control from the microscope
  - Switch between microscope and instruments with a touch of a button
  - Navigation data injected into microscope oculars
    - Critical structures
      - Target
      - Trajectory

- **Smart Camera**
  The Stryker Navigation Camera has a large field of view allowing the microscope and navigation instruments to be used together.
The Stryker Navigation ENT module provides unique instrumentation specially designed for ENT procedures. The unique geometry of the handpieces eliminates line of sight issues associated with optical systems. The wireless Smart Instrumentation is designed to be used in conjunction with standard ENT tools such as endoscopes and microdebriders.

There are no add on attachments such as passive spheres or wire based trackers which can interfere with the surgical procedure.

Software Features

- **Registration**
  - Anatomic registration
  - Eliminates extra preoperative images
  - Smart registration tools control accuracy
  - Surface match refinement
  - 3 point registration

- **Remote Software Control**
  - Software control from smart ENT instruments
  - Remote snap shots during navigation procedure
  - Archive data to on-board CD ROM recorder
  - Look ahead views with virtual tip extension

- **Express Menu Format**
  - Fast system set up
  - Common sense workflow

- **Wireless Universal Tracker**
  - Wireless tracker along with three styles of adapters allow your existing instruments to be navigated by the system.

- **Laptop System**
  - With the Laptop System you can review your cases conveniently prior to the surgical procedure. The large mass associated with most navigation systems is eliminated while complete system performance is maintained. The cordless smart technology simplifies setup and eliminates cables that clutter the operative site.

- **PCD**
  - Point Calibration Device
  - Fast calibration of surgical instrumentation at your fingertips.

- **Frontal Sinus Seeker Left & Right**

- **Nasal Pointer Left & Right**

- **45° Pointers Left & Right**

- **45° Suction Left & Right**

- **90° Suction Left & Right**
Stryker Navigation utilizes both CT and Fluoroscopic images for navigation of spine and long bone anatomy. The fluoroscopic based module allows real-time updating of the navigation data set with C-arm images. The CT based module provides both a three-dimensional and multiplanar display of the image data for navigation procedures. Stryker Smart Instruments provide the surgeon many remote tools such as measurement functions, implant planning, and image archiving.

**CT Based Spine Module Offers:**
- Automatic image set-up
- Multiplanar / 3D / Tools Eye / Target Oriented
- 3 Point Registration
- Surface Match Refinement

**Fluoroscopic Navigation/Trauma/Spine**
- 1 meter sphere
- Low Profile C-Arm Tracker
- Smart Camera
- Stryker field of view
- Other Systems field of view

**Software Features**
- Select image layout
- Assign and Label Image
- Rotate
- Shift Right or Left
- Brightness
- Mirror
- Screw Planning
- Measure
- Accuracy Check Point
- Tool Calibration

**CT Based Spine Module Offers:**
- Automatic image set-up
- Multiplanar / 3D / Tools Eye / Target Oriented
- 3 Point Registration
- Surface Match Refinement

**OR Set-Up**
Makes system set-up quick and accurate. Screen automatically appears when camera moves, and disappears when movement stops.

**Stryker Fluoroscopic Navigation**
- Calibration and navigation of both straight and curved instruments
- Navigated pedicle probe, gearshift, curette and starter awl
- Complete wireless system with active LED’s
- Smart Camera’s large field of view provides easy set-up and improved accuracy
- Surgeon has remote control of all system functions with smart instruments

**Precise Implant Placement**
Intra-operative screw planning and “guidance mode” aid in precise implant placement.
The Stryker Navigation Knee Module is a complete software package for knee replacement/revision procedures. The Knee Navigation System provides surgeons with pre-cut, intra-operative and post-cut assessments of the patient's joint kinematic measurements.

**Knee Navigation**

...best alignment for gap kinematics

**Software Features**

- **Imageless technology**
  - No CT/MRI images

- **Intra-operative planning system**

- **Patient kinematics derived by using motion analysis and bony landmarks**

- **Soft tissue management**

- **Navigated instrument positioning**

- **Pre-operative, intra-operative, and final implant patient records**

**Step by step comprehensive initialization of patient’s anatomy.**

**Gap kinematics with online visualization of knee angulations and displacement.**

**Easy and accurate navigation of resection plane.**

**Unique visualization tool for tissue balancing assessment.**