

SPINEL 12HD

MOBILE SURGICAL FLUOROSCOPIC
X-RAY SYSTEM



The Power of Passion

GEMSS

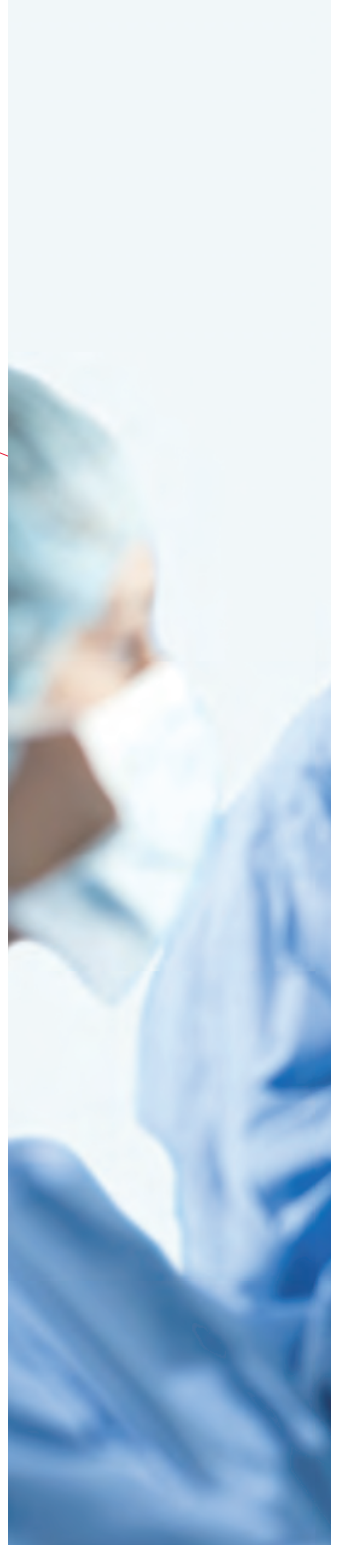
SUPERIOR IMAGING UNPARALLELED CONVENIENCE

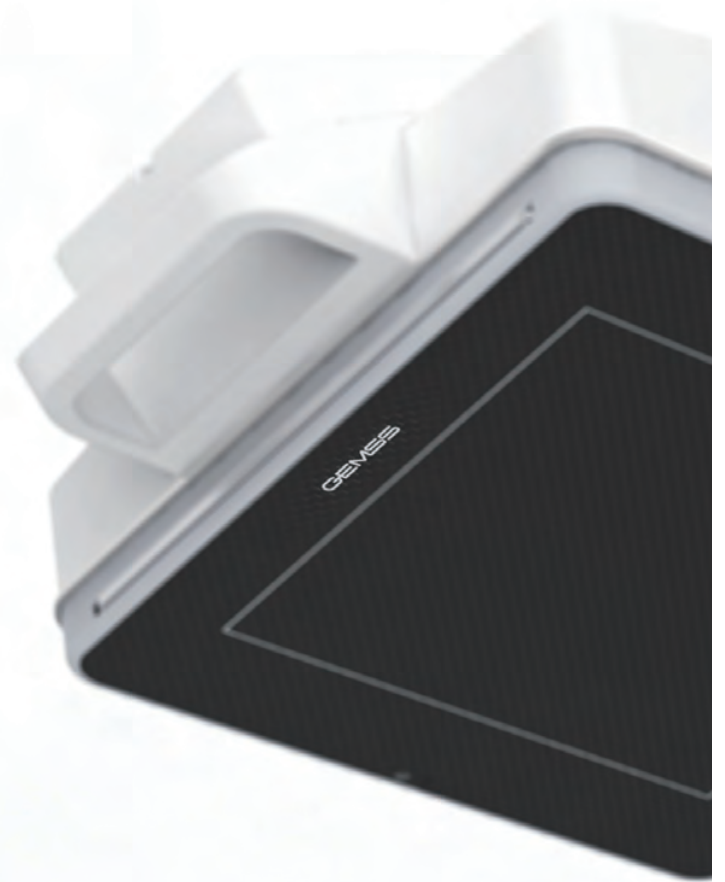
As surgical imaging demands more functionality and improved clinical applications the SPINEL 12HD delivers in every detail, from its superior image quality and ease of operation to its advanced engineering and attractive modern design.

The SPINEL 12HD features a 15.3" Dynamic Flat Panel Detector which produces the highest quality images possible with no distortion and minimized exposure to unnecessary radiation.

The sleek modern design and creative operational controls allow the SPINEL 12HD to move easily in confined spaces for increased hospital efficiency and patient comfort.

With advanced technology and optimized image processing, the SPINEL 12HD is the preeminent resource in every surgical setting, whether general surgery, orthopedic, neurosurgery, gynecology, angiography, vascular, anesthesiology, radiation oncology, interventional radiology or ERCP.





"Superior imaging and a new level of convenience means more clarity with more confidence."

ADVANTAGE - SPINEL 12HD! EXPLORE THE BENEFITS

01
—
Superior image
quality

Specifications at a Glance



"287 x 261 mm"
Flat-Panel detector



12kw, High Frequency
Generator



165° wide Orbital
Rotation with Large SID
Distance



Angio Package

- DSA,
- Roadmap
- Re-mask
- Pixel shift
- Max/Min peak opacification
- Landmarking



High Performance Rotating Anode X-ray Tube



Lowering Dosage

- Continuous mode[Low dose]
- Pulse mode[Half&Quarter dose]
- Dose report
- Multi leaf collimator & virtual collimator
- Laser guide
- Detachable grid
- Pulse mode



Smart Foot Switch



Touch Screen C-arm Control



High Resolution B/W 19"LCD Medical Grade Monitors

-1,000cd/m²



Stability

- Back-up fluoro
- Heating indicator
- RAID 1



Convenience

- Single power input
- Sub-handles
- Motorized monitor up/down
- 3rd monitor



Easy Archiving And Documentation

- DICOM 3.0
- CD/DVD Burner
- DICOM Paper print support
- USB Port



◀ Smart foot switch

02

Modern design for
optimum surgical
efficiency

03

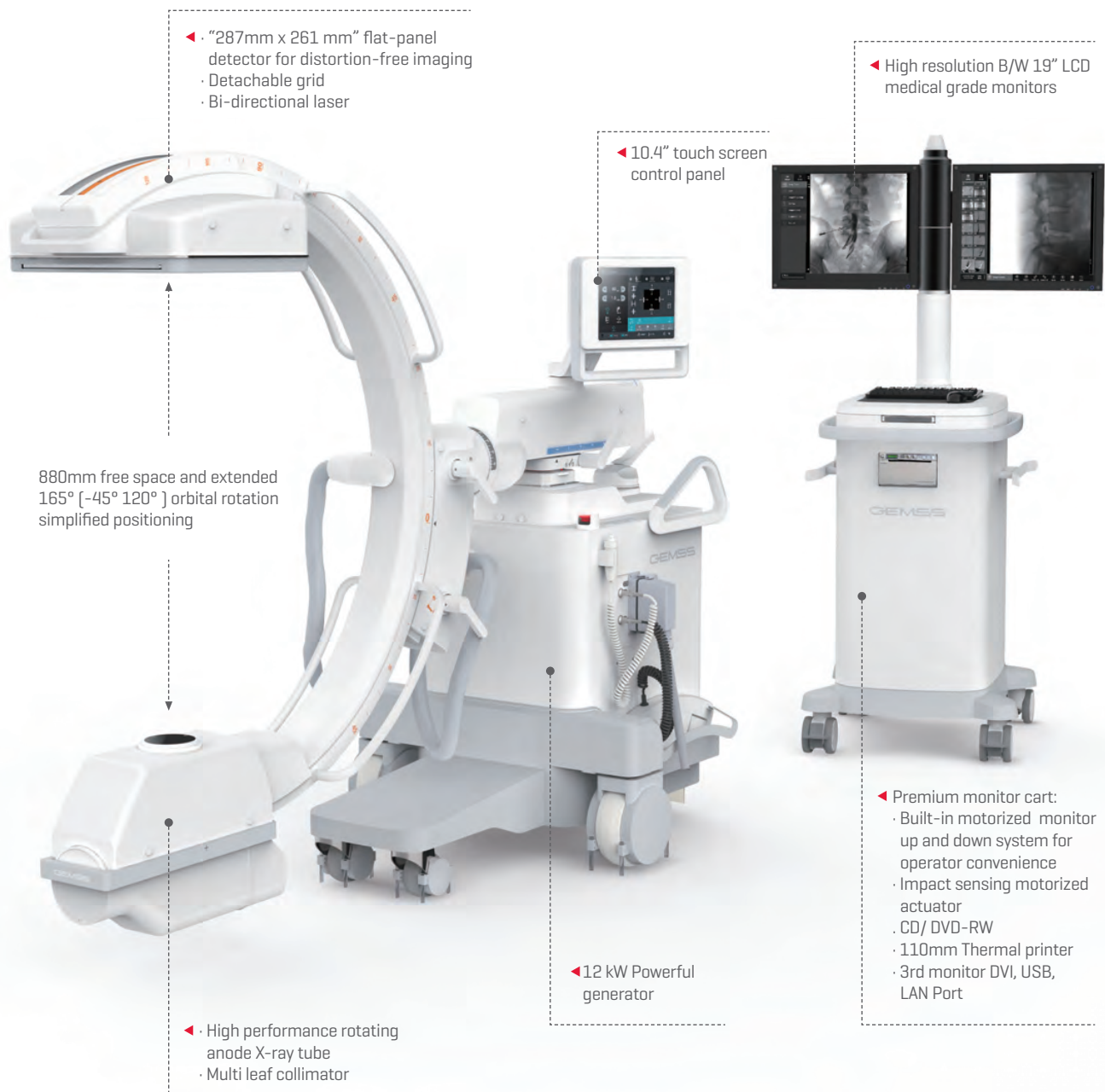
Advanced
functionality for
user convenience

04

Enhanced
radiation safety

05

Expanded
applications
support





SUPERIOR IMAGE QUALITY

In the tension-filled surgical arena where life is at risk there is no room for guesswork, no room for error, no time to waste. Prompt diagnosis, situational awareness and precise interpretation are imperative.

The exceptional image quality and unparalleled processing speed of the GEMSS SPINEL 12HD has been independently verified and its ease of operation is unique.

Fast, efficient, accurate, when nothing less will do!

True Digital Solution

State of the art mobile C-arm equipped with a 15.3" Dynamic Flat Panel Detector. Use of the Wide FPD [287mm x 261mm] produces superior images without distortion. The wide FOV [Field of View] provides more detail with fewer images and the lowest possible dose for user and patient.

Optimized X-ray Configuration

Utilizes a powerful 12kW high-frequency X-ray generator with 20mA Boost Mode for thick body parts, and is equipped with a rotating anode tube to maintain quality and performance during high output using small or large focus.

Smart ABC (Auto Brightness Control)

Smart ABC saves time by automatically controlling brightness and contrast to properly distinguish subject and background and acquire clear images fast.

Metal-Detected Control

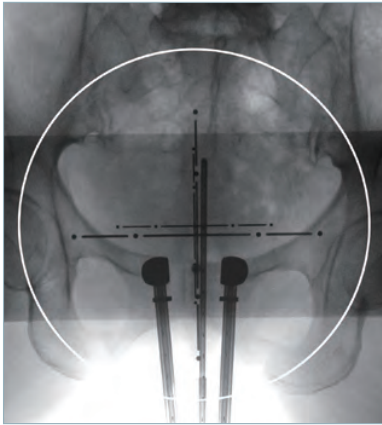
MDC detects surgical instruments and equipment within the FOV and automatically minimizes the brightness of the interfering metal to provide clear and stable images to the surgeon.

IODC (Intelligent Object Dose Control)

IODC recognizes all subjects within the FOV [Field of View] and optimizes image quality by regulating brightness and dosage even when the object is moving or on the periphery.

Simplified Radiographic Imaging

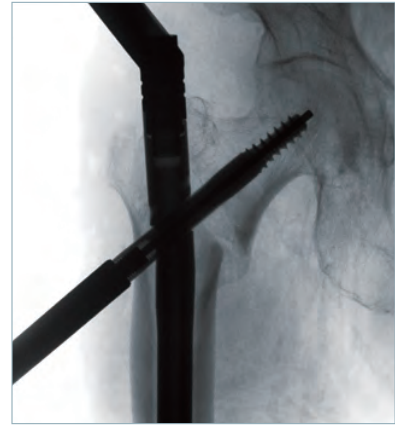
In Radiography Mode the Dynamic Flat Panel Detector generates high quality radiographic images. The dual modality function increases efficiency and saves time.



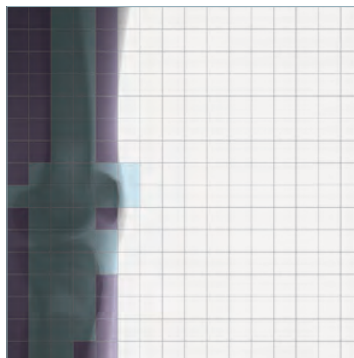
I.I type C-ARM generates distorted image by electro-magnetic wave or lens but FPD type C-ARM has wide and clear image without distortion.



Maximum 15.3' Wide Detector supports Multi level observation enable.



Metal Detection



IODC

SMART ANGIO PACKAGE

GEMSS R & D has resulted in the next generation mobile C-arm with imaging far superior to the angio images of exiting I.I. equipped models. The SPINEL 12HD next generation mobile C-arm further enhances performance with the GEMSS Smart Angio Package that includes DSA, Roadmap, Re-Mask, Pixel-Shift, Max Peak and Minimum Opacification, and Bone Landmarking and provides true versatility for the hybrid OR.



SMART Angio Package

DSA [Digital Subtraction Angiography]

Flat Panel Detector provides Superior Image Quality with no distortion compared to I-I models.

Roadmap[RSA]

Real-time imaging with no after-images increases accuracy and efficiency.

Max Peak Opacification [MSA]

Shows the full video of the contrast agent during DSA imaging, Providing more information to the practitioner, and saving time.

Bone Landmarking

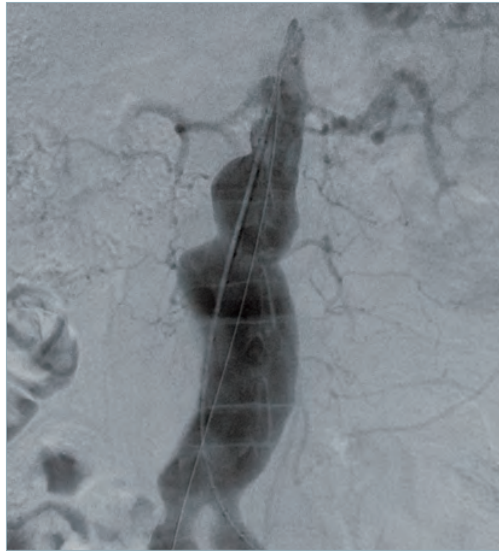
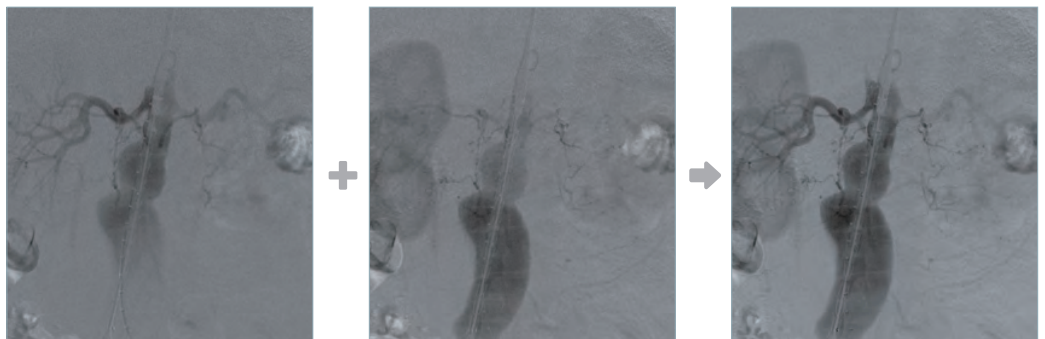
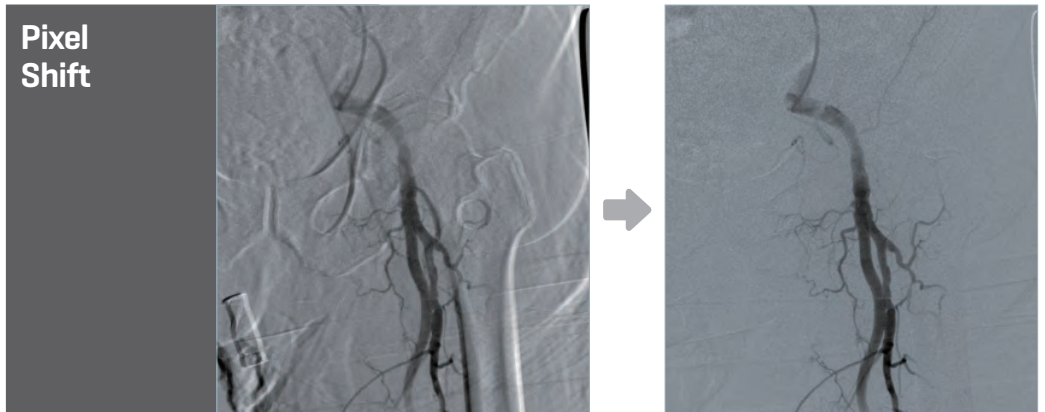
Shows anatomical structure and blood vessel images that cannot be seen well in DSA images

Manual Pixel Shift

Overlapping the image with a mask image, moving as the patient moves, increases sharpness and decreases retake rate.

Re-mask

User applies a New Mask to an existing DSA reference image for an improved image without a retake.

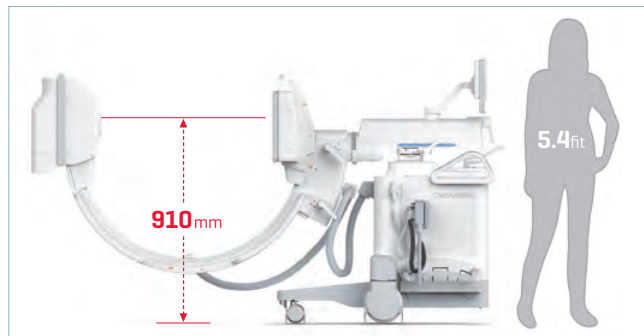
DSA**RSA****Pixel Shift****Max peak opacification(MSA)**

DESIGNED FOR OPTIMUM FLEXIBILITY

The SPINEL 12HD is specifically designed to be simple and intuitive to operate as well as compact and space-saving. It not only optimizes surgical workflow, but enhances the value of limited arenas.



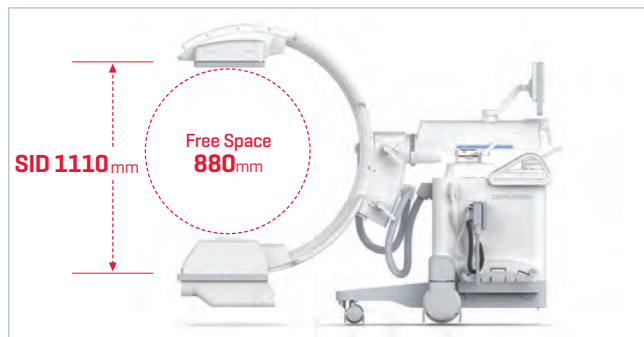
Slim Detector minimizes interruption of the table and user.



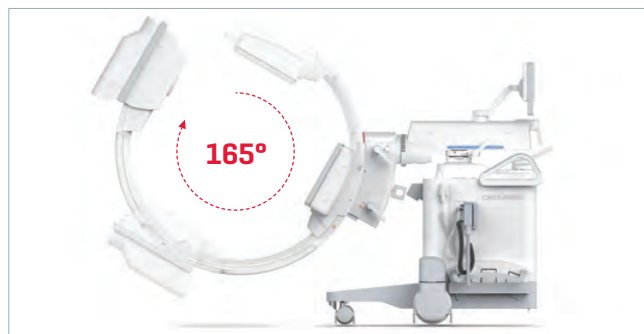
Minimum ISO allows easy LAT positioning without moving the table.

User Friendly Design

Wider free space [880mm] maximizes the surgical area minimizing interruption to the table during the operation. Moreover, the expanded orbital range [165°] provides smooth operation, allowing both oblique views without repositioning detector and tube. Wide SID [1110mm] provides a larger work environment, decreasing the risk of infection. Low ISO Center [910mm] allows smaller users to control AP/Lateral without changing table height.



Wide Free Space provides larger area for operation.



Both Oblique Position are available due to expanded orbital range [165°].

Detachable Grid

A detachable grid is provided to increase image quality and decrease dose, when not in use, it is stored in the customized bracket.



Easy and convenient storage space and a detachable Grid

Integrated Steering and Braking Handle

The user-friendly Break is integrated within the Steering Handle for convenient control and enhanced safety.

Compact Design for ease of movement and operation

The compact and sophisticated design is focused on height and center of gravity for convenient operation in small spaces. The four (4) front URETHANE wheels and eight (8) rear NYLON wheels make the machine easy to move.



USER CONVENIENCE

How can we make it more user friendly?

Throughout the product development process GEMSS engineers are constantly focused on user convenience. With the introduction of the SPINEL 12HD we have included a stunning array of user customizable features and Smart Functions to make your workflows easier, faster and more productive.



Premium Monitor Cart



Control Panel rotates
270 degree



Quick Navigation
UI System



User focused Control panel

The large 10.4" touch screen control panel rotates a full 270° to allow complete control in any position without moving the cart. Our Quick Navigation UI system is a sophisticated and intuitive design that is easy to learn and operate.

Smart Foot Switch

The programmable multifunction foot switch allows the user to select the three most commonly used functions for each procedure from the fifteen available functions* and the Smart Angio Package.

*Laser On/Off; X-ray Exposure; Capture; H-Flip; V-Flip; Rotate 90° Right; Rotate 90° Left; ABC On/Off; Column Up; Column Down; Invert; DSA On/Off; Roadmap On/Off; Cine On/Off.

CXView 3

Our proprietary CXView 3 software features a user-friendly interface and improves workflow efficiency. Register patients easily with functions such as Merge, Match and Split. Transfer images between two servers or more. Export images in a variety of formats. All functions are fully DICOM 3 compatible and integrate seamlessly with PACS.



Premium Monitor Cart

Our Premium Monitor Cart is simple and compact yet functional and mobile. Two 19" LCD High-Resolution monitors with motorized elevation easily adapt to each user's viewing preference and fold for complete mobility. Impact sensing actuators eliminate the risk of damage.

Back-Up Fluoroscopy

The ability to switch monitor inputs for emergency DIS image support, in the event of system error, provides Back-Up Fluoroscopy and a flexible response to any circumstance.

Mirrored Storage RAID 1

Mirrored storage avoids any loss of data in the event of a system failure by saving data to a **Redundant Array of Independent Disks** and increases stability in the OR.

Third Monitor

In order to share real-time video with an assistant medical team, a Third Monitor can be connected via DVI terminal with no loss of image quality.

ENHANCED RADIATION SAFETY FOR PATIENTS AND PERSONNEL

GEMSS has been at the forefront C-arm innovation and improvement for more than 20 years. Beyond the achievement of superior image quality, the increasing awareness of dose considerations and the safety of patients and operators demanded new development. Utilizing the integration of various technologies the SPINEL 12HD meets and surpasses the goal, producing the highest quality images while sustaining the safety of patients and personnel with the lowest possible dose.

Low Dose / Half Dose & Quarter Dose

Several users
selected modes
allow radiation dose
reductions of 30-
75% as needed.



Continuous Mode

Low Dose

- **Low Dose Mode** in Continuous Mode - 30% approximate dose reduction compared to Rapid/High Definition Mode



Pulse Mode

Half Dose
Quarter Dose

- **Half Dose Mode** in Pulse Mode - 50% approximate dose reduction compared to Standard Dose
- **Quarter Dose Mode** in Pulse Mode - 75% approximate dose reduction compared to Standard Dose

Dose Report

A Dose Report can be printed for each patient to help manage dosage, as well as the total exposure received during the procedure. Providing this information for patients increases confidence and trust.

Two-way Laser Guide

Laser guides attached to both the detector and to the tube allow a two-way positioning check. This function confirms accuracy in every configuration and further reduces radiation dose.

Removable Grid

The ability to remove the grid during a procedure involving children or extreme operations, helps to minimize radiation exposure and promotes safety.

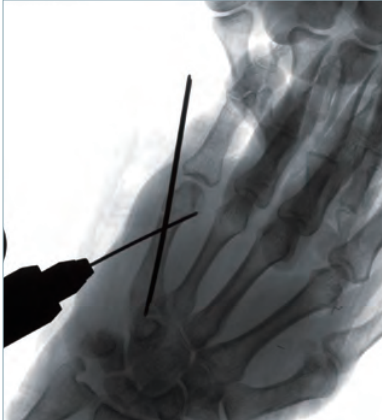
Multi Leaf Collimator & Virtual Collimator

Management of the radiation dose is facilitated by the use of our collimation functions. The Multi-Leaf Collimator and the addition of a Virtual Collimator allows the user to control exposure effectively and safely.



Applications

- Endoscopy Studies [ERCP]
- Fertility Studies [HSG]
- Angiography Studies [Abdominal, Cerebral DSA/ Roadmap]
- Therapeutic Studies [Brachytherapy]
- Orthopedic Studies [ORIF, CRIF, Gamma nail, I-M nail, HTO, Arthrography]
- Pain Clinic [Needle Positioning]
- Radiology: Esophageal Stent Placement, Chemoport insertion



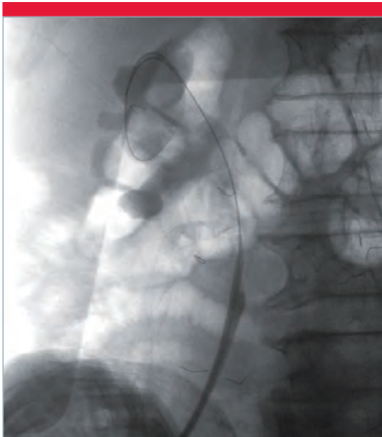
CRIF



Epidural Block



Multilevel Spinal Fusion



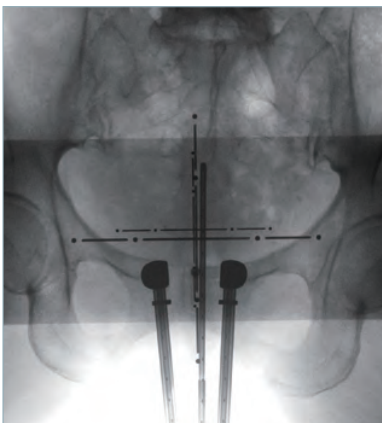
Ureteral Double-J Stenting



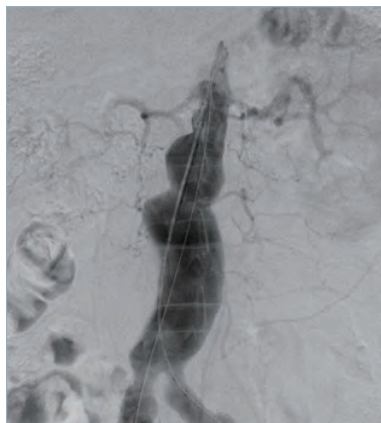
PTBD



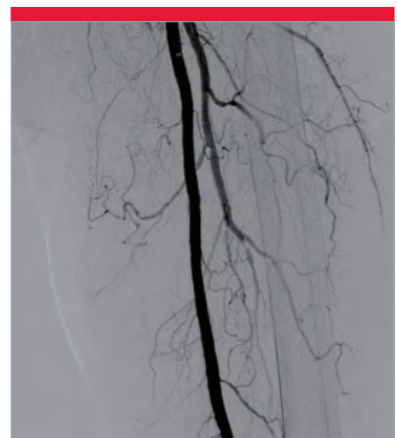
Esophageal Stent Placement



Brachytherapy



EVAR



Femoral Artery Angiogram

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