2D, 3D CT Intervention, and CT Fluoroscopy

SOMATOM Definition, Definition AS, Definition Flash

Answers for life.
Siemens CT Vision

Siemens CT Vision
The justification for the existence of the entire medical industry is, of course, better healthcare for all patients. But the realities of clinical routine often make this simple-to-understand goal quite difficult to realize: stay within budgets, reduce hospital stays, speed up time to diagnosis, and deal with personnel issues while maintaining high clinical standards and volume/throughput. At the same time, patients demand better and faster results.

Your benefits
In order to meet our share of responsibility in addressing these challenges, Siemens, from the earliest stages of research, product development and design, relies upon the advice and recommendations of external medical experts to determine our focus – and this focus has been on the needs and demands of our end users. In this way, our products have been able to make a welcome difference for you.

Leading innovation
In addition, Siemens has always been a visionary company believing that even the farthest technical horizons were temporary and could be surpassed with consistent dedication to improved health care. This visionary approach, backed up by the most consistent approach to R&D in healthcare, has made Siemens one of the undisputed innovation leader in CT over the last 30 years. The results are amazing: innovative improvements such as Dual Source CT and Adaptive Scanning.

Best results – Adaptive 3D Interventional Suite
With the new SOMATOM® Definition line and the introduction of the Adaptive 3D Interventional Suite we made CT guided procedure the centerpiece of interventional routine. Its core innovation – in combination with the revolutionary interventional control module, i-Control –
can be summarized in two words: Speed and Flexibility.

The innovative CT guided technology from Siemens brings tremendous advantages for both patients and the hospital in comparison to traditional surgical procedures: less complications, fast recovery of the patient and finally an earlier discharge at less costs.

Adaptive 3D Intervention Suite is the complete solution for 3D non fluoroscopic and fluoroscopic minimal invasive interventions. It is designed for spiral, sequence and fluoroscopic CT guided interventional procedures containing: Intervention Pro, Adaptive 3D Intervention, i-Fluoro, i-Control and a foot switch for radiation release.*

* Depends on scanner configurations
for better patient access, but also with improved accuracy thanks to ultrafast 3D image guidance in combination with path planning tools and needle artifact prevention, for improved procedures while delivering minimum possible dose. Our latest CT intervention solutions combine fully configurable scanning user interfaces enabling you to adapt your intervention scans to your needs.

With HandCARE™, you have significant dose reduction for the physician in all modes. A new toolbar enables one-click windowing and allows you to switch image views with a single click. From the toolbar, you can also control the precise position of the table – whether using the joystick or one click at the CT console – offering you unprecedented speed and accuracy in patient positioning. In-room, scan control is now also available for non-fluoroscopic procedures via an interventional control module. With our unique 3D-guided interventional solutions, a new level of precision and control for faster and more accurate CT guided, minimally invasive procedures is now available.

Adapt your intervention

SOMATOM Definition CT scanners are designed for a fast and intuitive workflow supporting these minimally invasive procedures. Whether you perform fluoroscopic or non-fluoroscopic procedures, you want first-class images so that you can clearly see your needle position in an instant in any plane. With our SOMATOM Definition CTs, we offer not only wider gantry openings of 78 to 82 cm

Maximum control

CT guided interventions such as vertebroplasty, tumorous lesions and image-guided percutaneous laser disk decompression are becoming more and more common.
2D CT Guided Interventions with Intervention Pro

• Fully customizable user interface.

• As patients are different the workflow of interventionalists is different as well. The fully configurable user interface (UI) supports these individual workflows providing a personalized user interface and scan setting for each physician.

• In addition the new layout allows for immediate access to all relevant scan parameters.

• Specific workflow tools allow safe and fast interventions.

Our Solutions for You

2D Intervention
3D CT Guided Interventions with Adaptive 3D Intervention

• The adaptive 3D Intervention allows for 3D volume intervention with near to real time interventional CT Imaging of coronal/sagittal/oblique views.

• Flexible – fully customizable user interface.

• On the fly access to all relevant scan parameters in 2D and 3D.

• 3D visualization (MPR) and needle path planning for safe interventions.

• 3D display of coronal, sagittal and axial MPRs.

• See the whole organ – VRT for better overview in the volume.

• Display of reference series, e.g. from previous exams for comparison in 2D and 3D.

CT Fluoroscopy with i-Fluoro

• For direct control of needle positions.

• i-Fluoro – minimally invasive fluoroscopic interventional procedure with maximum dose reduction.

• Display with up to 8 images on the screen for better overview.

• Hit your target in one go.
How often has the intervention been slowed down by mis-positioning the patient in the scanner, by coordinating scanner movements with your technician? The answer to this question is what has motivated us to design the world’s most straightforward CT guided interventional solution, combined with latest CT scanner technology.

**Experience a new level of added precision and confidence.**

- Get things done faster with full in-room control.
- On the fly access to all relevant scan parameters.
- Fully customizable user interface.
- Specific workflow tools allow safe and fast interventions.
- On the fly switch between sequences, spiral scan modes and fluoroscopic modes.*

* i-Fluoro required
Advanced 2D CT guided interventions

Intervention Pro

Fully customizable user interface

As humans are different the workflow of interventionalists are different as well. The fully configurable user interface (UI) support these individual workflows providing an personalized user interface and scan setting for each physician.

In addition the new layout allows for immediate access to all relevant scan parameters.
• Specific workflow tools allow fast interventions.

• The favorite selection allows you to create your own workflow.

• Various workflow enhancements enable you to save table positions and key images thus speeding up your workflow. These storage of scan positions allow exact movement from scanning position to working position.

• Display of a laser grid in the images for accurate entry point planning.

• Online switch between sequential (i-Sequence) and spiral mode (i-Spiral) for better overview and navigation in the volume.

Optional hardware for in-room control

• In-room Dual Monitor highly recommended.

• i-Control (for table movement and full software control). You can use the i-Control to control several functions of the CT scanner from inside the examination room.

[Diagram showing various control options]
Clinical Images
How often has your intervention been critical due to not direct accessible targets, organs or incomplete control of the needle positioning? The answer to this question is what has motivated us to design the world’s most straightforward 3D CT guided interventional solution, combined with latest CT scanner technology.

Experience a new level of safety, precision and confidence.

- Get things done faster with full in-room control.
- On the fly access to all relevant scan parameters.
- Fully customizable user interface.
- Specific workflow tools allow safe and fast interventions.
- On the fly switch between sequence and spiral scan modes.
- Precise needle control based on 3D visualization.
- Be always on track with automatic needle detection and path planning.
- Ultra fast 3D guidance, due image control with sagittal, coronal and axial images view.
- Accurate overview of your needle position and easy needle navigation.
Adaptive 3D Intervention

- Flexible – fully customizable user interface.
- On the fly access to all relevant scan parameters.
- 3D visualization (MPR) and needle path planning for interventions.
- 3D display of coronal, sagittal and axial MPRs.
- See the whole organ – VRT for better overview in the volume.
- Display of reference series, e.g. from previous exams for comparison of other modalities.
• 3D visualization of spiral and sequential CT guided interventions.

• Safe and accurate path planning from the entry point of the needle to the target.

• Flexible views: Standard 3D view or specific needle views along the needle axis provide new visualization of the needle path.

• i-Needle Sharp – reduces metal artifact from the needle*. It eliminates artifacts caused by the needle material. Depending on the size of the needle, the scan will be done in a certain angulation of the gantry. Images will be reconstructed as non-tilted axial slices, giving you the same information but without artifacts.

• Get things done faster with full in-room control via i-Control.

Optional hardware for in-room control

• In-room Dual Monitor highly recommended.

• i-Control (for table movement and full software control). You can use the i-Control to control several functions of the CT scanner from inside the examination room.

* For tiltable scanners only
3D CT guided interventions

Clinical Images
How often was your scanner blocked by movement? The answer to this question is the i-Fluoro mode a perfect solution for CT Fluoroscopy allowing direct fast and precise needle positioning.

Experience a new level of safety, precision and confidence.

• Precise needle control based on 2D visualization.
• Get things done faster with full in-room control.
• Hit your target in one go.
Advanced CT Fluoroscopy

i-Fluoro

• For direct control of needle positions.

• i-Fluoro – minimally invasive fluoroscopic interventional procedure with minimum dose.

• Display with up to 8 images on the screen for better overview.

• Hit your target in one go.

• Speed fluoroscopic mode e.g. for vertebroplasties, based on 3-slice mode contains two outer slices of 9.6 mm and a thick central slice of 19.2 mm.*

• Contains a foot switch for radiation release.

* For SOMATOM Definition AS+ only
HandCARE for i-Fluoro

HandCARE provides significant dose savings to the operator’s hand, while keeping the image quality constant. HandCARE also available for sequential mode.

Can be combined with:
• Intervention Pro
• Adaptive 3D Intervention

HandCARE avoids direct X-ray irradiation of the hand of the surgeon or radiologist during the intervention. It switches off the X-ray exposure for a 100° angle between three user selectable positions (10:00, 12:00 and 2:00 o'clock).

Selectable HandCARE positions: Blue indicates the angular range where the X-rays are turned off.
CT guided interventions

Clinical Images
CT guided interventions

Configurations – Single Options

Adaptive 3D Intervention Suite

Adaptive 3D Intervention Suite is the complete solution for 3D non-fluoroscopic and fluoroscopic minimal invasive interventions. It is designed for spiral and sequential CT guided interventional procedures. It allows for 3D volume intervention – near to real-time interventional CT Imaging with coronal/sagittal/oblique images and switching scan modes on the fly during intervention with one single click that translates into substantial time saving.

The Adaptive 3D Intervention Suite contains Intervention Pro, Adaptive 3D Intervention, i-Fluoro, i-Control plus foot switch for radiation release.

Intervention Pro

Intervention Pro supports spiral and sequential non-fluoroscopic interventional procedures and complete organ coverage with maximal flexibility and with minimal single click effort. It is designed for fast and intuitive non-fluoroscopic and fluoroscopic interventional procedures such as drainage, biopsies or pain therapy (please note: CT fluoroscopy is an additional option with i-Fluoro). It also allows for switching scan modes between sequential to spiral mode on the fly during CT intervention. It contains: 2D Basic interventions, i-Sequence mode with HandCARE, i-Spiral mode, customizable user layouts and interventional toolbars.

Adaptive 3D Intervention

It is a built-in 3D minimal non invasive solution for spiral and sequential CT guided interventional procedures. It allows for 3D volume intervention – near to real-time interventional CT Imaging with coronal/sagittal/oblique images. It also allows for switching scan modes on the fly during intervention. Additionally an interventional 3D toolbar is available supporting syngo® 3D tools, Path Planning, to navigate the needle cautiously during the intervention including:

- Auto Needle Detection
- Switch between patient oriented view and needle oriented view
- i-NeedleSharp* to avoid needle artifacts during a sequential intervention
- i-needle sharp can be switched on.

* Only for SOMATOM Definition AS+ series
** Optional
*** Required for Adaptive CT Interventions
i-Fluoro CT

i-Fluoro CT allows for ultrafast 2-dimensional interventional fluoroscopic procedures. Fluoroscopic scans are acquired with low dose techniques and displayed in real time on, with up to 10 frames/s, an additional in-room monitor. It also allows for switching scan modes on the fly during intervention.

i-Control

The interventional control panel (i-Control) supports interventional procedures as independent remote unit. The i-Control can be attached to the side rails of the table**, or an i-Control trolley** i-Control Wireless CT module supports interventional procedures as independent wireless remote unit.

Basic Intervention Package

A basic Intervention package is already included in all SOMATOM Definition scanners. Scanner software free of charge containing HandCARE for sequential scanning, online switch of scan parameters, 2D Layout selection box, saving of key images, table movement can be triggered from scanner console or gantry panel.

Additional hardware

• Table Side rails enable the quick and easy attachment of additional accessories such as i-Control or even an infusion bottle holder to the patient table.
• 2nd additional 19" Flat Screen Monitor for display of additional data in the scan room during interventions.
• Ceiling Support Intervention allows for installation of the in room monitor from the ceiling.
• Ceiling Kit for 2nd Monitor provides accessories for installation of a second monitor (monitor included) from the ceiling.
• Dual Monitor 19" AWP provides syngo dual monitor software and a 19-inch flat panel display for medical diagnostic applications for the Acquisition Workplace.***

• i-Control Trolley is for accommodation and safe installation of the i-control CT module.
• Dual Monitor Cart Intervention houses two monitors for easy positioning in the scan room (second monitor is included).
In the event that upgrades require FDA approval, Siemens cannot predict whether or when the FDA will issue its approval. Therefore, if regulatory clearance is obtained and is applicable to this package, it will be made available according to the terms of this offer.

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