SHIMADZU

Excellence in Science

Trinias B8/C8/F8 *unity* edition
Digital Angiography System

SHIMADZU

Management System
ISO 9001:2008
ISO 13485:2003

TÜVRheinland
CERTIFIED
www.tuv.com
ID 0091004755

Shimadzu Corporation Medical Systems Division has been certified by TÜV Rheinland as a manufacturer of medical systems in compliance with ISO9001:2008 Quality Management Systems and ISO13485:2003 Medical Devices Quality Management Systems.
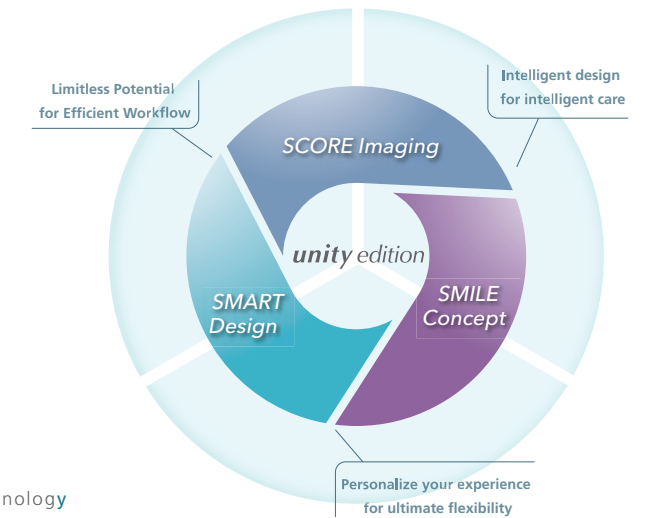
Spire in Cardiology

Based on our many years of experience, Shimadzu has added the latest advancements in imaging technology to our Trinias system to achieve the highest quality patient care in interventional procedures. The result is a patient centric experience, free from worry for operators to easily perform all types of interventional procedures. Trinias Unity edition sets the bar high with improved functionality with new hardware and software features that provides simple workflow for cardiac and vascular procedures from head to toe. The system uses Intelligent Design to provide Intelligent Care in minimally invasive procedures. Our technology provides solution to the imaging problems that you face every day.

Limitless Potential for Efficient Workflow

Intelligent design for intelligent care

SCORE Imaging

unity edition

SMART Design

SMILE Concept

Personalize your experience for ultimate flexibility

*unity = **un**limited **i**ntelligent **t**echnology

Biplane system	Single plane system	

| B8 unity edition	C8 unity edition	F8 unity edition

SCORE Imaging

Taking Minimally Invasive Procedures to New Levels

SCORE PRO Advance

Equipped with advanced functionality for motion tracking noise reduction, and object isolation-based enhancement, the SCORE PRO Advance image processing unit was designed to achieve lower exposure levels and higher image quality.

Shimadzu's real-time image processing technology can isolate fine blood vessels, such as micro vascular arterioles during chronic total occlusion angioplasty (CTO) procedures, by enhancing only the target object without sacrificing image quality or increasing exposure dose. Consequently, Shimadzu supports advanced interventional procedures with even higher quality images.

SCORE PRO Advance $\frac{1}{2}$ DOSE
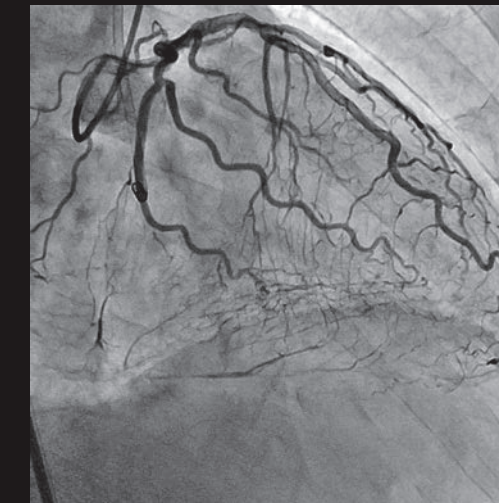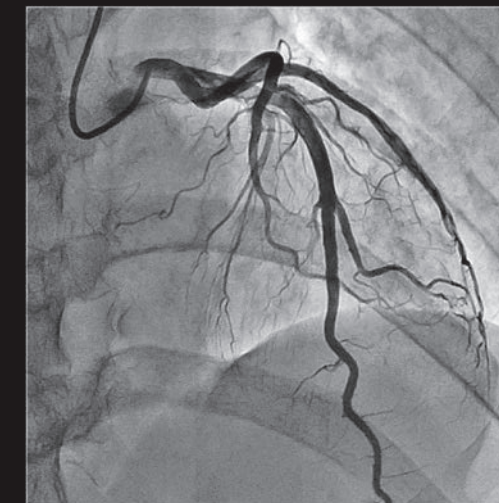
Even Lower Exposure Dose Levels

The higher image quality offered by SCORE PRO Advance represents another step forward in the advancement of minimally invasive (low dose) procedures. By using an optimal combination of the low-dose mode and low pulse rate, optimized for each examination, Trinias systems can be expected to reduce exposure levels by about 50 % per examination while also providing high image quality.
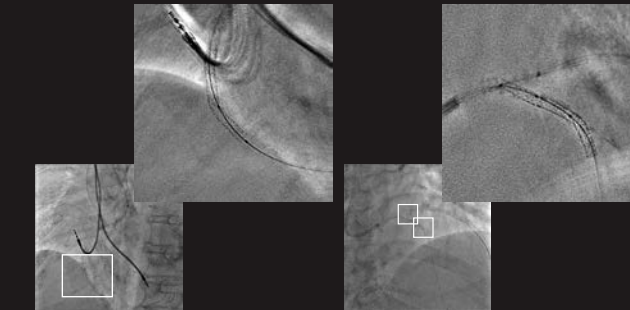
SCORE StentView OPTION

SCORE StentView is the latest, advanced version of StentView, considered truly revolutionary by many clinical users, allowing you to enhance stents and adjust position in dynamic images in real-time. The function for specifying the region of interest (ROI) now allows multiple markers to be used for automatic detection, which contributes to higher detection efficiency and shorter examination times.

Stent overlap   Post balloon

Regions of Interest Can Be Specified

Specifying a region of interest (ROI) improves device detection efficiency, even if multiple devices are present.

Real-Time Observation Without Looking Away

Simply pressing the [StentView] button or pressing the foot switch automatically displays the StentView image on the live monitor that the operator is watching. Because StentView images can be viewed in real time without looking away from the live monitor, StentView can be used without interrupting the procedure.
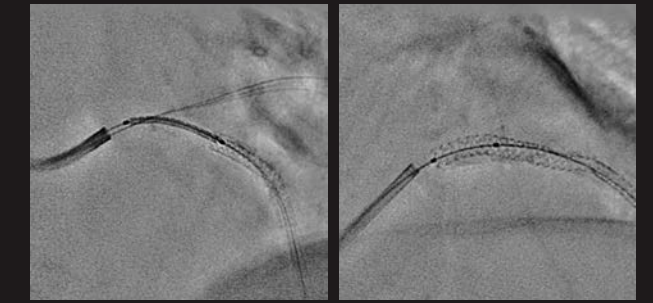

1. Specify regions with an ROI

The automatic recognition only identifies the marker within the ROI, regardless of how many markers are in the field.

2. Specify markers with an ROI

If there are multiple devices, due to bifurcations, identification markers can be specified for each device.

SCORE StentShot   ~High definitive device visualization~   OPTION

Outstanding stent visualization with SCORE StentShot enhances patients' safety and reduces treatment time. This application provides a static noise free, stent enhanced image, for optimum, post-deployment stent visualization.


SCORE StentShot

SCORE RSM

SCORE RSM is an extremely motion-tolerant DSA technique, achieved through Shimadzu's high-speed digital image processing technology.
This application is especially effective for tracking vessels across the entire lower extremities, for 3D imaging in combination with C-arm precession and pendulum modes and for examinations on patients who have difficulty holding their breath.

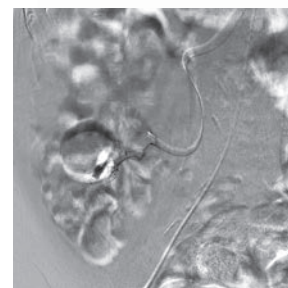**View images from multiple directions with a single imaging session**
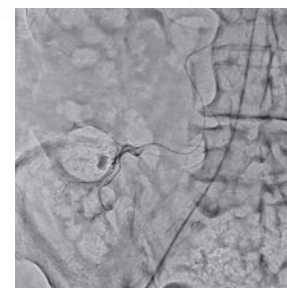
Precession mode
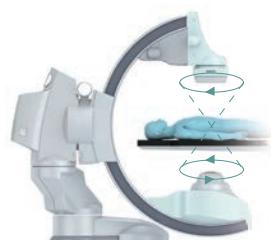
Pendulum mode

New Type of DSA Unaffected by Breathing Movements and Intestinal Gas


Normal DSA   SCORE RSM

SCORE Chase *Optional*   Improves Visibility of Entire Lower Extremities Area

Shimadzu SCORE Chase enables freely panning longitudinally or laterally during exposures to trace blood flow through blood vessels.
After exposure, SCORE Chase instantly creates a positionally-corrected stitched image automatically and displays it on the monitor so that the overall blood flow through blood vessels in the lower extremities can be determined easily.

Linking Images to Catheterization Table *Optional*

Used in combination with a SMART Table multifunctional catheterization table, this links stitched images to the table, so that the SMART Table is automatically repositioned based on the region of interest during magnification or panning in that image.
It supports minimally invasive procedures in the lower extremity areas by moving to the region of interest more smoothly and quickly.
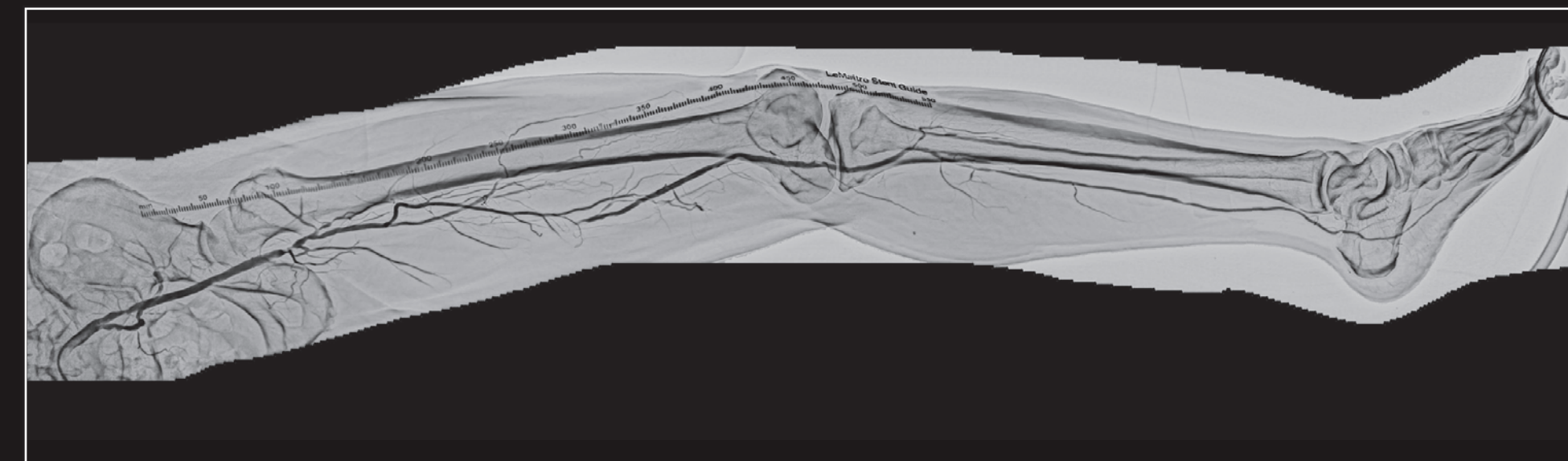
SCORE MAP

Trinias includes a wide variety of roadmap functions that can be selected based on the body area, procedure, and technique in interventional procedures.

Because MAP image settings are kept associated with images even after changing the field of view or magnifying the image or after switching to the frontal or lateral views, MAP functionality can be used without repeating exposures for MAP purposes.

TraceMAP

The TraceMAP function dramatically improves the visibility of wires and devices by automatically overlaying an outline of vascular walls isolated from DSA images onto fluoroscopic images. It can be used for aortic stent grafts and supports endovascular treatment (EVT) of arteries in the lower extremities.
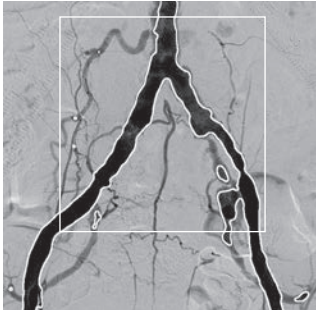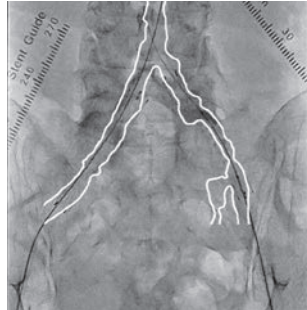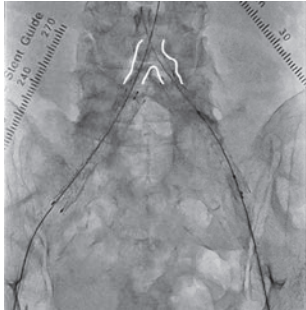

Automatic Trace   TraceMAP at ROI

Sketch function

This function enables easily drawing guide lines by hand on fluoroscopic images.

Sketch function

FluoroMAP

This applies a subtraction process to the current fluoroscopic image and uses the resulting image of blood vessels as a MAP image. Because it does not require any additional exposures for the MAP function, it results in reducing the contrast media and exposure levels used. Either a without-bone or with-bone display mode can be selected.

DSA-MAP

The DSA-MAP function displays DSA images overlaid on fluoroscopic images. Either a without-bone display mode, used for areas such as the head, or a with-bone display mode that retains the bones for use as a reference can be selected.

DSA-MAP   DSA-MAP

BlankMAP

Fluoroscopy, this function displays the blank frame with only the subsequent changes enhanced. It can be used for coil or liquid embolization of tumors in the head region, for example.

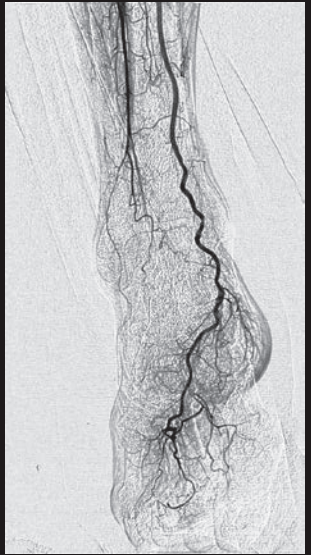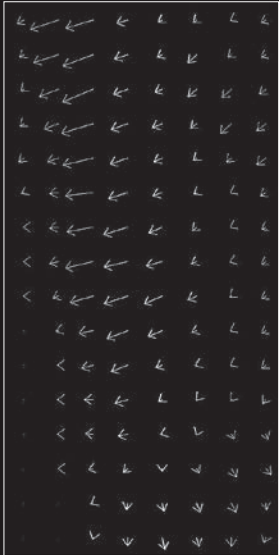## Flex-APS ~Advanced real-time pixel shift for DSA~

Flex-APS saves time by automatically adjusting three-dimensional misregistration caused by all body movements, including twist motion, providing enhanced DSA imaging.

SCORE 3D OPTION

The SCORE 3D application allows rapid display of the 3D reconstructed images automatically after rotational radiography. With a top rotational image acquisition speed of 60 degrees per second, the shorter contrast medium injection time reduces the burden on patients while suppressing the impact of movements on the images and ensuring high image quality. In addition, operability has been dramatically improved thanks to easy GUI customization via the pallet function.
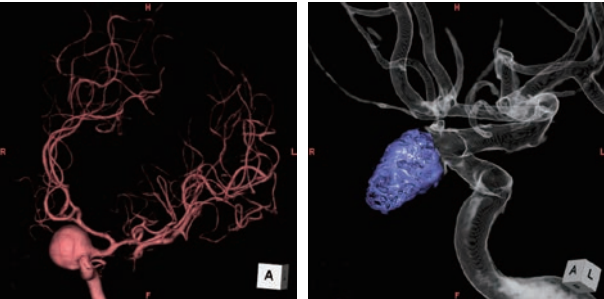
### Palette Function

User-customizable user interface

SCORE Navi / Navi+Plus

SCORE Navi/Navi+Plus is an application that utilizes preprocedural images to support minimally invasive interventions. By synchronizing the C-arm projections to pre-procedure MDCT images, the system enables these MDCT images to be used as a reference during interventions, reducing contrast media usage and X-ray dose. Automatic registration of the MDCT images with live fluoroscopy images is easily achieved. With the MDCT image overlaying the live fluoroscopy it allows you to adjust the rate of blending. The Navi+Plus application also includes a virtual stent feature that allows you to simulate the stent size and placement position before carrying out a procedure.

Bi-directional angle linkage between C-arm and MDCT image

Reference CT image tracks C-arm movement.

CT image angle linked to C-arm movement
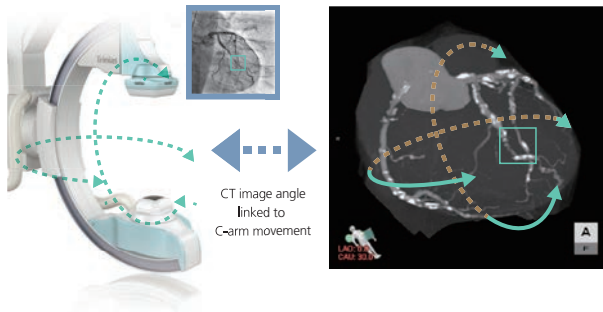
Wide-Area CT Plus Fluoroscopy Display

Supports additional dose reduction by reducing the fluoroscopy aperture.
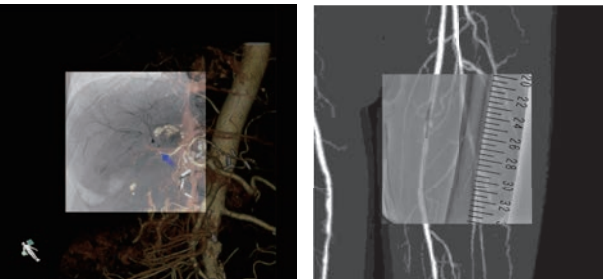
SCORE Navi＋Plus

Virtual Stent

Simulates optimal stent size.
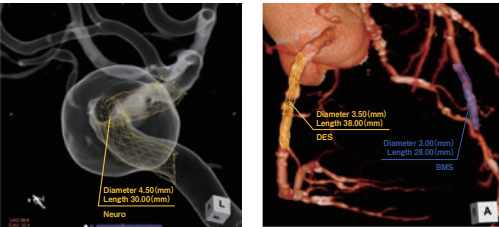
Multi-Data Fusion

Confirm stent deployment pre/post CAS.

Extender Function

Automatically renders feeders to the tumor stain.

SCORE Navi

3D Road Map

Overlays a transparent image on a fluoroscopy image.

MPR Road Map

Overlay any cross section image on fluoroscopy image.

c8/F8

SMART Design

Changing the way. Making it possible.

SMART Assist

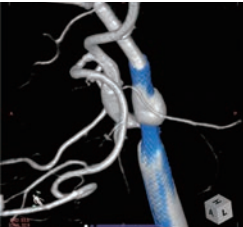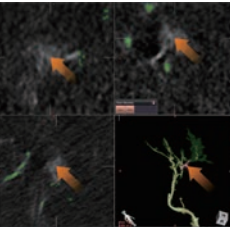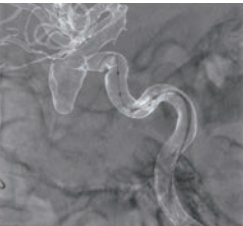The system has been designed for single-action performance to make system control in the examination room and control room as simple as possible. This improves efficiency during procedures.

C-Arm Controller

The C-arm can be freely controlled using a lever-type Cyber Console.
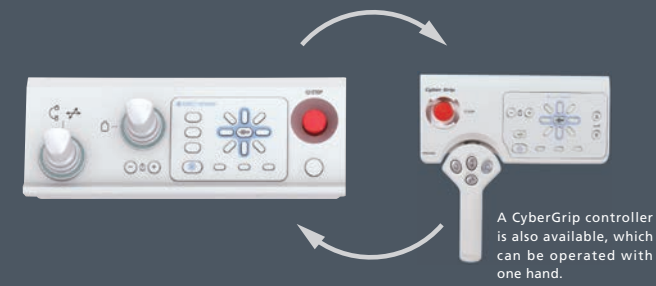
A CyberGrip controller is also available, which can be operated with one hand.

Direct Memory

Registered clinical angles can be called up intuitively using a graphical controller layout.
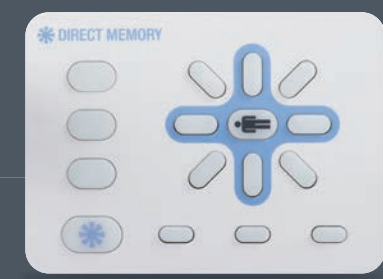
SMART Access

The single-plane system is available either with a ceiling-mounted (C8) or floor-mounted (F8) model C-arm. Both models are designed to provide a broad operating range. The system layout can be freely configured based on the procedures performed and can flexibly accommodate installing peripheral equipment as well.

Ceiling **c8**

Wide Coverage Reduces the Burden on Patients

The ceiling-mounted C-arm is capable of full-body coverage without moving the patient, thanks to a wide 210 cm coverage in the transverse direction and 190 cm in the longitudinal direction. Movement in the transverse direction, in particular, supports safe radial catheterization approach.

190cm*   210cm*

Floor **F8**

Six-Axis Triple-Pivot Construction for Full-Body Coverage

A total of six axes are provided for the base and rotational axes of the floor-mounted C-arm, achieving wide coverage. In particular, the triple-pivot construction of the base enables freely adjustable arm positioning and also allows transverse movement for radial access.

190cm*   140cm*

Pivot Turn   Pivot Turn

Home Position   Multi-Position   Peripheral Position   Hand Access Position
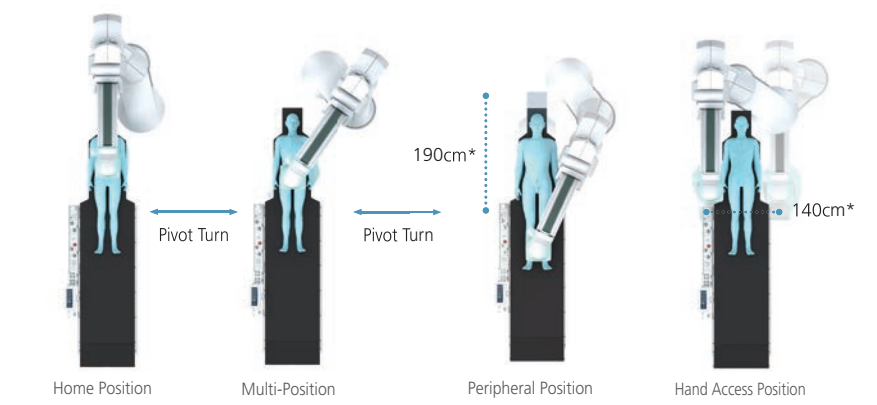
* Stated length (cm) describes total X-ray imaging range added to C-arm movement, table top movement, and FPD field of view.

14   15

## SMART Assist

The system has been designed for single-action performance to make system control in the examination room and control room as simple as possible. This improves efficiency during procedures.

Direct Memory

Registered clinical angles can be called up intuitively using a graphical controller layout.
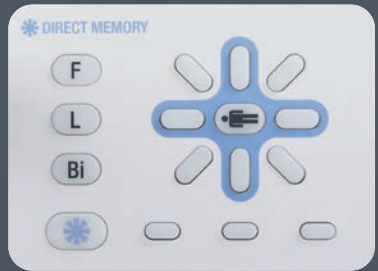
SMART Access

Our faster c-arm and six axis triple pivot on the floor provides a quick and easy set up for even the most complicated procedures. Our industry leading SMART Access provides full access around the table, leaving the head end open for physicians and staff, when necessary.

Bi-plane *B8*   **Accessible as Single System with B8 Lateral C-Arm**

The frontal C-arm can be freely set up as easily as a single plane system without changing the lateral C-arm.

Pivot Turn   Pivot Turn   ←140cm*

Home Position   Multi-Position   Hand Access Position

By retracting the lateral C-arm, the lower extremities and other areas in the longitudinal direction are also easily accessible.

CyberChase Function Automatically Follows Areas of Interest

The ceiling gantry offers a vertical movement of 17.5 cm of the imaging chain to permit rapid biplane positioning to a region of interest, without altering the table height. The CyberChase function automatically follows the area of interest, even when the angle is changed, to ensure rapid and accurate positioning.

Cyber Chase
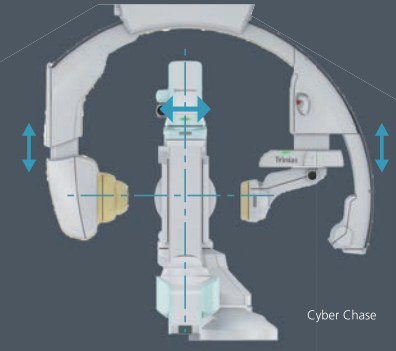
High Speed C-arm Movement Supports Fast Workflow

The high-speed frontal arm positioning of 25°/s in single-plane mode or 15°/s in biplane mode allows rapid switching between single plane and biplane operation providing a stress-free, smooth operating environment.

Biplane positioning *15°/s* ←→ Single plane positioning *25°/s*

Bi plane

Single plane

Trinias
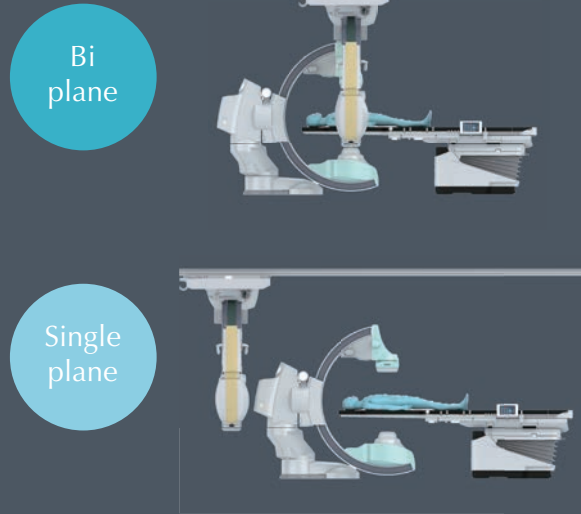
Multifunctional SMART Table Accommodates a Variety of Procedures and Techniques

Smart Table can be configured for approaches based on complicated procedures and techniques in various areas, from cardiovascular and head areas to lower extremities, to accommodate a wide range of imaging.

Smart Table can be operated either manually with the ergonomic mushroom handle or electronically with the table control buttons.
Smart Table can also be synchronized to imaging, so that Smart Table is positioned within the region of interest after zooming/panning.

Supports a Broad Range of Lower Extremity Areas

Tilt Function Adjustable Based on Procedure/Technique

*It can also be combined with regular catheterization tables.

Multifunctional Wireless Foot Switch *Optional*

With no cables on the floor, it is easy to position the foot switch where the operator is standing.

SMART Display

With the large 58-inch high-resolution color LCD and touch panel controller, the operator can select the optimal display of image data to suit the current procedure.
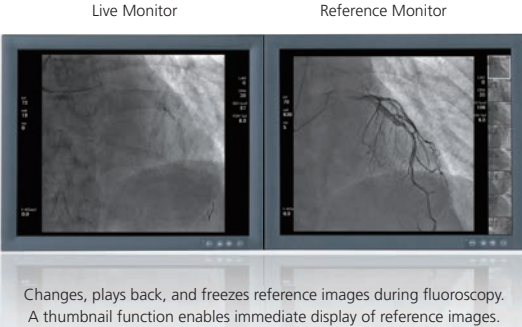
SMART Touch Provides Smooth Operability

All screen operations are consolidated in one place on the touch panel, including for changing the fluoroscopy/radiography program required during surgical procedures, switching between a wide variety of functionality, and selecting images. By making operations easier to understand and intuitive, it supports a more sophisticated use of surgical procedures and techniques.

Dynamic Reference

Reference images can be changed, replayed, or paused during fluoroscopy. Moving images from before and after surgical procedures can be compared and replayed.

Live Monitor   Reference Monitor

Changes, plays back, and freezes reference images during fluoroscopy. A thumbnail function enables immediate display of reference images.

Parallel Processing Achieves an Efficient Workflow

A multiprocessor enables parallel image processing during examinations providing an efficient workflow.

SMILE Concept

Safety + Comfort = SMILE

Patient-Friendly Clean Design

The color design not only creates a slim form and clean look.

SMILE Dose-eye

■ Seven Features That Reduce Exposure

SMILE Dose-eye achieves an excellent system-wide optimization between lower dose and high image quality.

1	MBH Filter	Effectively eliminates unnecessary soft X-rays.
2	Pulsed Fluoroscopy	Select from 10 different rates depending on the procedure.
3	Grid Control	Blocks unnecessary soft radiation.
4	Virtual Collimation	Enables collimation without fluoroscopy.
5	Image Processing	SCORE PRO Advance ensures lower dose and higher image quality.
6	Fluoroscopy Video Recording	High-definition fluoroscopy can substitute for radiography.
7	Area Dosimeter	The monitor displays the actual dosage in real time.

■ LL⇔RL switching

X-ray tube left or right positioning (LL⇔RL) with single button operation. Switching the X-ray tube position for each examination alleviates the concentrated X-ray exposure at a specific position on the patient.
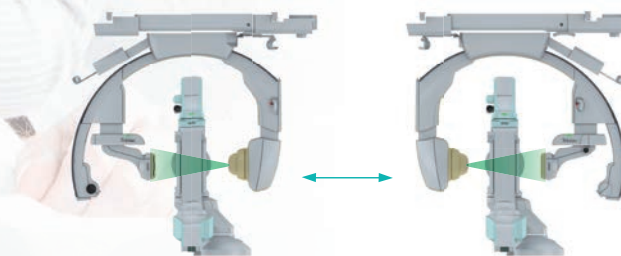
SMILE Recovery

■ High-Speed Setup

All functions are available within two minutes after the power is turned ON.
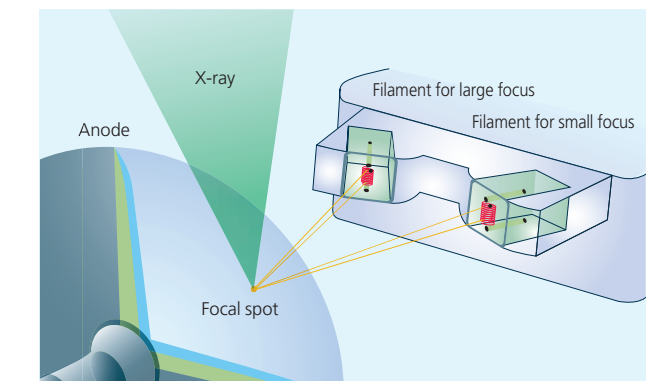
■ Data Mirroring

The mirroring architecture provides data storage redundancy.

■ Backup Filament

If a filament burns out during an examination, the other filament will be automatically selected so the examination can be continued.

X-ray
Filament for large focus
Filament for small focus
Anode
Focal spot

Even More Worry-Free and Reliable Japanese Quality for Interventional Procedures

All Processes, From Production to Quality Control and Shipping, Performed Within Shimadzu

Shimadzu manufactures Trinias products at Shimadzu's own advanced technology plant, where all processes from production to quality control and shipping are performed within the Shimadzu facility to ensure Trinias products are delivered with the highest quality.

Advanced Quality Center Ensures High Quality

Within the Shimadzu facility, Shimadzu has built a Quality Center that is equipped with state-of-the-art equipment for various evaluation and analysis necessary to ensure that only the highest quality products are delivered. The Quality Center is also used for product development, quality assurance, and to ensure compliance with various regulations and standards.

Worldwide Service Network

- 🔴 SUBSIDIARIES
- 🔵 OFFICE
- 🟡 J.V.
- 🔴 Sales & Service Agents
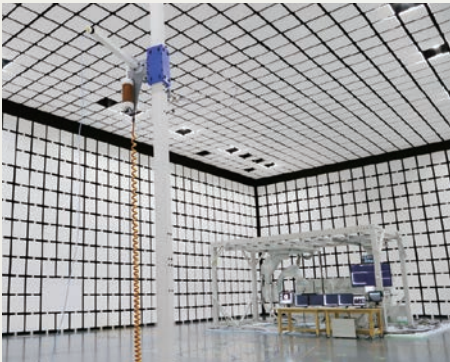
Proactive Service Support Program

Periodic Maintenance

- Our professional service experts visit periodically and inspect the system.
- Mechanical, electrical and safety checks are performed. Calibration is carried out whenever necessary to ensure optimal system performance.

Emergency Service Support

- Shimadzu local service centers provide rapid response times.
- On-call support is available for your emergency needs.

Parts Warranty Program

- A selection of parts warranty programs is available for you selection to manage your service needs and plan your running costs.

Remote Maintenance Service

The Shimadzu "Site-ViewBB" provides you with remote maintenance service.
- In the event of possible system errors, the Site-ViewBB automatically generates an alert message for proactive service support by our field service engineers.
- Some software updates can be performed by the Shimadzu Remote Maintenance Center through Site-ViewBB, further improving system uptime.
- Our system experts periodically analyse system log files through Site-ViewBB.

Public Network

Remote Maintenance Center