Remote Controlled R/F System

FLEXA VISION HB Package
Hybrid (SFD & Digital) System
A Wide Range of Features
and Options Accommodate Numerous Examination Scenarios
Table Elevation: a Unique function in its class
Previously available only in high-end systems, FLEXAVISION can be equipped with a table elevation function. In addition to allowing safe patient transfer onto the table from a wheelchair or stretcher, this function makes it easy for the operator to perform approaches during a wide variety of procedures, including digestive tract examinations, IVR, and urological examinations, and also helps to reduce both patient and operator stress. (Systems without this function are also available.)

95cm
69cm
FLEXAVISION Mechanisms That Enhance Ease of Use

Bedside Switches

Tabletop and imaging chain operation switches are provided on the bedside to allow examinations and positioning while caring for the patient.

Shimadzu’s Unique Imaging Chain Extension Function

Our imaging chain extension function allows you to easily secure the area required for a variety of examinations. For example, with VF examinations of patients in wheelchairs, this function eliminates the need to transfer the patient to the table and then raise the table to perform imaging, reducing the operator’s work and patient’s anxiety. This function is also effective for low-magnification standard radiography of the chest and abdomen.

X-ray Tube 180˚ Swing Unit

180˚ rotation of the X-ray tube/collimator easily and effectively accommodates chest examinations using a bucky stand.

Allows a Variety of Examination Approaches

FLEXAVISION incorporates a compact, fast-moving table that allows the operator to rapidly perform a variety of examinations, with a large coverage area that accommodates each type of examination range. Vertical, lateral, and oblique imaging chain movement, combined with table inclination and elevation let the operator easily perform approaches in a variety of procedures with a minimum of patient movement, ranging from gastrointestinal tract, urinary organ and orthopedic examinations to specialized procedures such as nonvascular IVR.

- **Longitudinal and oblique movement of imaging chain**
  - Table tilt, elevation and lateral movement
  - Gastrointestinal tract
  - Urinary organs
  - Orthopedics
  - Nonvascular IVR

- **Wide coverage ensures a large examination area**
  - Examination range: 133 cm
    (when using 35 × 43 cm cassettes)

- **Allows capturing the center of the shoulder joint in orthopedic examination**
  - Lateral table movement: 22 cm

- **Ensures suitability for general radiography, orthopedic and enema examinations.**
  - Oblique projection range: -30° to +30°
High-definition, full-digital images from the 1-megapixel CCD camera allow monitoring in both radiography and fluoroscopy modes. The multi-cassette spot filming function ensures this system can flexibly accommodate a range of examinations requiring a large field of view, such as those of the urinary tract and abdomen.

**1024 × 1024-Matrix, 12-bit (4096-Gradation), Full-Digital Images**

Equipped with a high-definition 1-megapixel CCD camera, the 12-inch (30 cm) image intensifier provides a large field of view. In fluoroscopy and radiography, real-time acquisition of high-definition, full-digital images allows immediate viewing on a monitor.

**Serial Radiography**

Digital serial radiography at up to 3 fps (7.5 fps option) ensures precise image timing in regions such as the esophagus, where contrast medium flow is difficult to capture.

**Cassette Spot Filming Function**

Advanced technology in the Spot Film Device gives precise radiography timing. Cassette movement from the "park" position to the "exposure" position is almost instantaneous, allowing perfect capture of the region of interest.

**Wide Selection of Cassette Sizes**

A selection of cassette sizes, from 18 X 24 cm to 35 X 43 cm, can be used to perform a wide range of examinations, from thoracic to orthopedic. Also, a xenon-filled phototimer (option) with 4 spot fields and minimal radiation scattering ensure that X-ray efficiency is high and radiography is stable.

**“Memory Shot” Function Ensures Optimal Radiography Conditions**

For spot film radiography performed during a fluoroscopy examination, the optimum radiography conditions for radiography of the region of interest, is instantly and automatically set from the required fluoroscopic exposure condition. Additionally, the systems APR function allows the presetting of up to 12 exposure conditions. This allows for quick and optimal imaging of common procedures.

**APR Function**

Users can create programs for any procedure, based on 12 types of radiography technique.

- **User programming of radiography conditions**
  - Tube voltage, tube current, exposure time, phototimer settings, etc.

- **Chest, high voltage**
- **Chest, low voltage**
- **Abdomen, low voltage, contrast priority**
- **Abdomen, low voltage, time priority**
- **Gastrointestinal tract**
- **Additional**

**Highest Image Quality in Its Class**

- High-definition, full-digital images from the 1-megapixel CCD camera allow monitoring in both radiography and fluoroscopy modes.
- The multi-cassette spot filming function ensures this system can flexibly accommodate a range of examinations requiring a large field of view, such as those of the urinary tract and abdomen.

**Wide range of cassette sizes**

- 18 X 24 cm
- 35 X 43 cm

**Phototimer for stable radiography**

Cassette accommodates various examinations, from thoracic to orthopedic.
Gastrointestinal Examinations

Easily Control Contrast Medium Flow in Upper Gastrointestinal Tract Examinations

Supports radiographic esophageal examinations in the vertical position and Trendelenburg position up to -30°.

Easy Access from Tableside

The simple space-saving design of this system makes it easy to perform endoscopic procedures from the tableside. Distance from the bottom of the table to the observation field is 55 cm (using a 12-inch image intensifier), ensuring endoscope positions in fluoroscopic images are captured precisely.

Sub-divisional Digital Radiography

2-frame and 4-frame Digital radiography is efficient for screening.

Accurate Timing of Esophagus Radiography

Digital serial radiography at 3 fps (up to 7.5 fps with option) allows precise timing of esophageal examinations.

With Rehabilitation Patients

For patients in wheelchairs, esophageal examinations no longer require transferring the patient to the table and raising it to the desired position for imaging, reducing both operator-related work and patient anxiety.

Endoscopic Examinations

Easy Access from Tableside

The simple space-saving design of this system makes it easy to perform endoscopic procedures from the tableside. Distance from the bottom of the table to the observation field is 55 cm (using a 12-inch image intensifier), ensuring endoscope positions in fluoroscopic images are captured precisely.

Large Field of View in Digital Radiography

The 12 inch (30 cm) Image Intensifier provides a large examination area which is required in enema examinations.

Nonvascular examinations, IVR rehabilitation, pediatrics, internal medicine, surgery/trauma

• Utilize large peripheral workspace around the table.
• The stroke of the imaging chain ensures an easy approach from the table edge.
• Raise/lower tabletop to a convenient height for procedures
Orthopedic Examinations

Single Image Captures a Large Field of View
The multi-cassette spot filming function, which can be used with cassette sizes of up to 35 × 43 cm, allows precisely timed radiography over a large view field.

Wide-Range Coverage
Adding a auxiliary tabletop* enables radiography over a large range, from the ankles to the shoulder joints. (*Option)

Optimum Images
High-density resolution and multiple digital image-processing technologies produce optimum-quality images.

Additional Examinations

Table Elevation*
Use the table elevation function to adjust the table height from 69 to 95 cm, allowing operators to perform procedures using comfortable positions.

Easy Access from End of Table
Distance from the far end of the table to the observation field is 29 cm, allowing an easy approach when performing bronchial endoscopy.

Support for Large Area Radiography
Cassette spot filming, available with cassettes up to 35 × 43 cm, ensures radiography over a large field of view can be performed with precise timing.

Angiography *OPTION
High-speed, high-definition, real-time DSA is available at 7.5 fps on a 1024 × 1024 matrix.
The design, manufacture, and assembly of all parts used in our FLEXAVISION system, including both the X-ray tube and image intensifier as well as the R/F table, DR, and X-ray generator, are performed in-house by Shimadzu. The system’s design reflects our consideration of how to match all related aspects, such as ease of use, reduced X-ray dose, and observation using high-quality images, with the actual examination environment.

**Operation Console**

FLEXAVISION’s compact console controls the R/F table and the X-ray generator, providing a comfortable operation environment for the operator. The console key layout is designed with the operator in mind, facilitating intuitive and fast operation.

**Easy-to-Use Digital System**

Our digital image processing unit is based on highly reliable hardware. Simple operations allow processing of high-quality digital images at high speed. An easy-to-see graphical user interface (GUI) and mouse control provide an intuitive operating environment.

**Parallel Processing Improves Work Efficiency**

Even during fluoroscopy or radiography, images can be transferred to a viewer or laser imager. The ability to execute processes independently reduces the time spent waiting for completion of non-examination processes and improves overall work efficiency.

**Automatic Image Transfer**

This system supports automatic image transfer to DICOM viewers, servers and laser imagers. This function is achieved in the background improving examination efficiency and patient throughput.

**NOTE)** * isn’t included in FLEXAVISION package.
70% Overall Dose Reduction

The importance of considering X-ray dose increases as the types of examinations performed using X-ray equipment expand.

While maintaining stable image quality, the FLEXAVISION system makes it possible to reduce overall X-ray dose as much as 70%.

Low-Dose Pulsed Fluoroscopy

Three types of pulse rates can be selected of 15, 7.5 and 3.75 fps. High-quality images can be observed with less dose to the patient, even during interventional procedures requiring long periods of fluoroscopy.

Beam-Hardening Filter

A beam-hardening filter precisely removes soft X-rays that do not contribute to images. This reduces exposures while maintaining high image quality.

Last Image Hold function (keep display of last image on the monitor after fluoroscopy) can reduce unnecessary exposure.
Digitization for Improved Work Efficiency

With FLEXAVISION, image digitization streamlines tasks involving the observation, storage and query of images, while helping to increase work efficiency.

Real-Time Image Storage in High-Capacity HD

Incorporating a high-capacity hard disk, FLEXAVISION can directly store up to 15,000 radiographic images, providing you with peace of mind during examinations requiring large storage capacity.

Diagnosis on Monitor

When acquired images are stored in the hard disk, they are also displayed in real time on the monitor. This allows immediate confirmation of images that have been captured during medical examinations, improving examination efficiency.

Media Storage

Data can be stored on DVD-RAM, DVD-R or CD-R discs in DICOM-compliant format. This allows offline observation of images without conversion using a DICOM-compliant medical image observation viewer or server.
Compatibility with DICOM Network

FLEXAVISION supports DICOM 3.0, the globally recognized standard for medical imaging and communications, including storage, MWM and print.
Support for DICOM MWM is also available as an option. This enables the online transfer of patient information from a HIS/RIS.

DICOM print

With DICOM Print as a standard feature, you can easily connect to a laser imager.

Exports Image Data in Multimedia Formats

All image files can be written in JPEG or BMP format to shared folders.

NOTE) This figure includes items not consist of FLEXAVISION package.
**TABLES AND SPECIFICATIONS**

### R/F Table

<table>
<thead>
<tr>
<th>Elevation Function</th>
<th>Available</th>
<th>Not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tabletop Dimensions</td>
<td>66 cm × 210 cm</td>
<td></td>
</tr>
<tr>
<td>Transverse Movement Range of Tabletop</td>
<td>22 cm</td>
<td></td>
</tr>
<tr>
<td>Height of Tabletop Above Floor</td>
<td>69 cm to 95 cm</td>
<td>89 cm</td>
</tr>
<tr>
<td>Tabletop Range</td>
<td>2'10&quot; (horizontal position) to 90' (vertical position)</td>
<td></td>
</tr>
<tr>
<td>SID</td>
<td>110 cm</td>
<td></td>
</tr>
<tr>
<td>Oblique projection</td>
<td>Not available with 1.82m FFD extension</td>
<td></td>
</tr>
<tr>
<td>Cassettes Multi-division Exposure</td>
<td>2 exp./sec.</td>
<td></td>
</tr>
</tbody>
</table>

### High-Voltage X-ray Generator

<table>
<thead>
<tr>
<th>50 kW Type</th>
<th>80 kW Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-time Rating</td>
<td>50 kW AC</td>
</tr>
<tr>
<td>150 kV, 500 mA</td>
<td>125 kV, 500 mA</td>
</tr>
<tr>
<td>125 kV, 400 mA</td>
<td>125 kV, 500 mA</td>
</tr>
<tr>
<td>100 kV, 200 mA</td>
<td>100 kV, 600 mA</td>
</tr>
<tr>
<td>80 kV, 630 mA</td>
<td>80 kV, 1000 mA</td>
</tr>
<tr>
<td>Long-time Rating</td>
<td>125 kV, 4 mA</td>
</tr>
</tbody>
</table>

### Installation Conditions

- **Installation Area**: Approx. 350 cm (width) × approx. 230 cm (depth) min.
- **Ceiling Height**: 240 cm min., 250 cm min. recommended.
- **Operating Weight**: Without table elevation function: 600 kg
  With table elevation function: 730 kg

### System Power Supply Requirements (Power for the R/F table is provided from the high-voltage X-ray generator)

<table>
<thead>
<tr>
<th>50 kW Type</th>
<th>80 kW Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>50 kVA min.</td>
</tr>
<tr>
<td>Allowable Impedance</td>
<td>0.087 Ω max.</td>
</tr>
<tr>
<td>Ground Terminal (Grounding resistance)</td>
<td>10 Ω max.</td>
</tr>
<tr>
<td>Knife-switch Capacity</td>
<td>50 A min.</td>
</tr>
<tr>
<td>Molded-case Circuit-breaker Capacity</td>
<td>100 A max.</td>
</tr>
</tbody>
</table>

### Digital Processor

- **Digital Processor** | Single-phase 200/230/240 V, 1 kVA |

### X-ray Tube

- **R Digita**
- **Metal Image Intensifier (Representative Values)**

| 12.9 inch (Dual), 12/9 inch (Triple), 10/8/7 inch (Multi) |
| Resolution | 1254 or 1024 matrix, 10-bit, 30 fps |
| Pulsed fluoroscopy | Pulsed fluoroscopy (3.75, 7.5, 15 fps) |
| Radiography | 1024 × 1024 matrix, 10-bit |

### Urological/Orthopedic Unit

- **Network-Related Options**
  - DICOM storage
  - DICOM MMW
  - Max. 7.5fps SERIAL acquisition
  - Max. 7.5fps DSA acquisition

### A Variety of Options for Supporting Examinations

- **Gastrointestinal / General Radiography Unit**
  - X-ray tube swing out unit
  - X-ray tube 180° swing unit
  - Rolling step
  - Compression band
  - Mattress
  - Oblique projection unit *Note 1*
  - Imaging chain extension unit (1.8m/2.0m) (with cassette holder) *Note 1*
  - Lateral cassette holder

- **Urological/Orthopedic Unit**
  - Drain bag
  - Leg supports
  - Endoscope support
  - Elbow rest
  - Auxiliary tabletop

- **Network-Related Options**
  - DICOM storage
  - DICOM MMW
  - Max. 7.5fps SERIAL acquisition
  - Max. 7.5fps DSA acquisition

- **Other Options**
  - Local console
  - Footswitch
  - Monitor cart
  - Maximum allowable load UP kit *
  - Automatic transformer, KAT-2
  - 2nd -tube option
  - Direct phototimer
  - Scan converter (fluoroscopy)

*Indicates options installed at the factory.

**Note 1**
The oblique projection unit and the imaging chain extension unit (1.8m/2.0m) cannot be installed together.

**Note 2**
If the system is combined with the imaging chain extension unit, the SID 1.5 m isn't available. Fluoroscopy cannot be performed with 1.8/2.0 m FFD.

**Note 3**
Some options cannot be combined. Inquire separately for details.
R/F Table

(Table shape is different if table elevation function is not available.)

Remote Console

Control cabinet

Units: mm

(Table shape is different if table elevation function is not available.)

(): Indicates dimensions without table elevation function.
Founded in 1875, Shimadzu Corporation, a leader in the development of advanced technologies, has a distinguished history of innovation built on the foundation of contributing to society through science and technology. We maintain a global network of sales, service, technical support and applications centers on six continents, and have established long-term relationships with a host of highly trained distributors located in over 100 countries. For information about Shimadzu, and to contact your local office, please visit our Web site at www.shimadzu.com


Remarks:
- Every value in this catalogue is a standard value, and it may vary a little from the actual at each site.
- The appearances and specifications are subject to change for reasons of improvement without notice.
- Certain configurations may not be available pending regulatory clearance. Contact your Shimadzu representative for information on specific configurations.
- Before operating this system, you should first thoroughly review the Instruction Manual.

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