

**SHIMADZU**

# PRODUCT DATA

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X-ray

Diagnostic

Table

## **FLUOROSPEED 300** (YSF-300)

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### **GENERAL**

Used in combination with an X-ray high voltage generator, an X-ray tube unit, an image intensifier and an X-ray TV set, this system applied for the following X-ray examinations:

- X-ray T.V. fluoroscopy
- Digital radiography
- Over table radiography

## FEATURES

### DEDICATED SYSTEM FOR DIGITAL IMAGING

- (1) A CCD camera of 1,000,000 pixels is adopted. All interfaces are digitized so that stable and analog images of high quality without deterioration can be realized.
- (2) Image acquisition at a high speed (15 frames/sec) at 1k matrix is realized.
- (3) Clear fluoroscopy images and sharp radiography images are offered by diversified image processing including noise reduction, edge enhancement and Auto Image Optimization (AIO).
- (4) Because the menu on the monitor can be operated directly by the mouse and the keyboard operation, it is possible to operate it intuitively and easily.
- (5) A control panel to operate the DR system (DAR-8000i) is incorporated into the Imaging Control Unit. The following functions can be executed at the Control Panel on the Imaging Control Unit.
  - Print Selection  
Selects DR image to print. When multiple images are displayed, this selects the images in the box cursor.
  - Store Image  
Stores the last fluoroscopic image held on the monitor.
  - Image Reverse  
(up & down/right & left)  
Reverses the next fluoroscopic and radiographic images vertically and horizontally.
  - Image selection & WIDTH/LEVEL adjustment  
Using the 2 Shuttle switches, changes image file/frame, and adjusts WIDTH/LEVEL.

- (6) By removing the SFD, the image intensifier faceplate can be mounted 75mm closer to a patient. This contributes to improved image quality, reduction of the X-ray dose and expansion of the available FOV for fluoroscopy and digital acquisition.
- (7) Motor-driven grid oscillates to give images free of grid lines. It can be shifted out of the exposure field in fluoroscopy/digital spot for pediatrics or gall bladder examinations.
- (8) Safe and efficient functions.
  - Efficient arrangement of switches and handles on the operator control panel provides for ease of operation.
  - Technique selection. Fluoro timer reset and adjustment of density can be set at the control panel of the Imaging Control Unit.
  - Fluoro preparation switch is provided to inhibit accidental exposure.

### EASY AND EFFICIENT TABLE FUNCTIONS

- (1) Wide range of patient positioning
  - 175 ~ 100cm longitudinal travel of the Imaging Control Unit covers up to the esophagus of upright patients.
  - 210cm long tabletop slides 76cm Head Side, 76cm Foot side and ± 10cm laterally.
  - 20 ~ 50cm compression travel of the Imaging Control Unit covers both large and small patients.
  - Table tilts in variable speed from 88° vertical to 88° trendelenburg with an automatic stop at horizontal position.

- (2) High operability
  - Servo-motor assisted travel of Imaging Control Unit make operation more convenient.
  - Quick driving and soft start/stop of table tilting/sliding provides more patient comfort.
  - Tabletop drive, table tilting, tabletop automatic centering switches are located on the table side. Table tilting angle indicator and emergency switch are also located on the side of the table body.
  - Fluoroscopy foot switch allows hands free operation.
  - Protective apron shifts to correspond to table angle.
- (3) Patient safety features
  - Myelographic stopper inhibits compression travel as pre-set by the operator.
  - Automatic release of compression lock keeps the patient safe when the tabletop is moved abruptly.
- (4) 87cm high and flat tabletop ideal for cross table exams.
- (5) The hand grips, the shoulder rest, and the compression band (option) can be secured at any position.

### AUTOMATIC COLLIMATION

- (1) The max. fluoroscopic field is automatically limited to the size of I.I. input surface by the iris type shutter.
- (2) Radiation field can be manually narrowed down to the rectangle by the horizontal and vertical leaves.
- (3) Field size is automatically compensated in relation to the compression travel of the Imaging Control Unit.

## FEATURES (cont.)

### CEILING SUSPENDED X-RAY TUBE SUPPORT

- (1) Communication between the generator UD150B-40/V-40/L-40 control console and the X-ray tube support permits exposure parameters and APR to be set and changed on the X-ray tube crane. The combination of operations from a clear, color LCD display with unique, advanced APR functions allows rapid setting of the parameters.
- (2) The collimator self-adjusts according to the selected SID and the size of the inserted cassette (PBL compatible). It maintains an accurate irradiation field while preventing unwanted X-rays to the patient.
- (3) The long vertical travel range, which is 1600mm, provides sufficient SID (Source Image Distance) for images in the supine position as well as for low position images in the standing position.
- (4) Rotation around the vertical axis is enabled, by activating the rotation-switch, which is located on the control panel. The lock can be set in any position, allowing precise, accurate positioning.
- (5) There is an "All Lock-Release Switch" on the upper part of the handle, allowing one-handed operation for procedures in the standing position.
- (6) The ceiling support is equipped with a pin-stop mechanism, which accurately locates the column assembly in the 'Center-Find Position'. Due to its precise pin-stop mechanism this allows rapid preparation for taking X-ray images. There is also a mechanism for suppressing shock when the support is stopped quickly and suddenly, ensuring greater durability.
- (7) Buttons allowing rotation around the vertical axis and motion in 3-direction, as well as a collimator-illumination button, are provided on the rear of the support. This features the versatility to perform positioning in emergencies or any other situation.
- (8) The 8 brake-release buttons positioned on the control panel can be customized to suit each user's individual preferences.
- (9) The aluminum rail has a dual structure that incorporates a hardened steel inner-rail wear strip, reducing unevenness on the bearing surface and providing a smooth operation.
- (10) In combination with rear-mounting type of X-ray tube support CH-200 and YSF-300, the radiography using Bucky device of YSF-300 can be performed and remote control to move the YSF-300's tabletop in longitudinal or transversal directions is available by joystick on CH-200's operation panel.

### ACCEPTABLE RELATED APPARATUS

- (1) 16" I.I. can be incorporated without the aid of ceiling suspension. (Maximum allowable weight on the Imaging Control Unit is 58kg.)
- (2) Shimadzu photo-pickup for automatic exposure control is available for the bucky device.

## CONFIGURATION

### STANDARD CONSTITUTION

- (1) Diagnostic table body main assembly 1 set  
This unit consists mainly of a body frame, a tabletop frame, a tabletop, a longitudinal travel carriage, a lateral travel carriage, balance weights, a table supporting base, a table tilting mechanism, control circuit parts, and X-ray tube mounting parts.
  - (2) Tower assembly 1 set  
This unit consists mainly of a digital deck supporting tower, a compression travel carriage, balance weights, compression cone driving parts and SID detecting parts.
  - (3) Digital deck 1 set  
This device consists mainly of a support frame, control circuit boards, a grid, a protective apron, a compression cone, and a control panel.
  - (4) Standard accessories
    - Built-in bucky device 1 set
    - Foot rest 1 set
    - Hand grips 1 pair
    - Hand grip bars 1 pair
    - Shoulder rest 1 pair
    - Protective apron 1 set
    - Servo Iris Collimator 1 set
    - Foot switch for fluoroscopy 1 set
    - Installation tool set 1 set
    - Users manual 1 set
- ### OPTIONAL ITEM
- Table top cushion
  - Lateral Cassette holder
  - Patient restraint
  - EXT Console

## SPECIFICATIONS

### IMAGING CONTROL UNIT

Field collimation	Automatic field collimation (possible adjust by manual within the I.I. FOV.)		
Collimation mode	Rectangular mode (controllable from the Imaging Control Unit), plus automatic iris shutters that track to selected mag size and compensate for SID changes.		
Grid	Ratio: 10, Density: 44 lines/cm, Fiber, Possible to shift in and out		
Compression cone	Motor driven		
Movement of Imaging Control Unit	Longitudinal travel	100~175cm	(Servo-motor assisted)
	Lateral travel	±12.5cm	
	Compression travel	20~50cm	
Parking of Imaging Control Unit	Slide parking to the right	46cm	
Locking of Imaging Control Unit movement	Electromagnetic locks		

### FLUOROSCOPY TABLE UNIT

Table tilting	Type		Motor driven
	Range		+88° ~ -88°
	Speed		Continuous, variable speed with max. 90°/17sec., Soft start/soft stop
Table sliding	Type		Motor driven
	Longitudinal	Range	76cm Head side, 76cm Foot side (in table horizontal position) 30cm Head side 10cm Foot side (in table vertical position)
		Speed	3.7cm / s (50Hz), 4.5cm / s (60Hz)
	Lateral	Range	±10cm
		Speed	2.5cm / s (50HZ), 3.0cm / s (60Hz)
	Tabletop shape	Flat	
Tabletop material	C.F.R.P (Carbon Fiber Reinforced Plastics)		
Tabletop size	210 × 76.5cm		
Tabletop height in horizontal position	87cm from floor		
Tabletop ~ focus distance	46cm		
Tabletop allowance load weight	136kg (300lb)		
	227kg (500lb) (patient is stationary and lying horizontal on a tabletop in the center location.)		
Total weight	1,500kg		
Power requirements	3ø 200V 3kVA 50/60Hz 3ø 400V 3kVA 50/60Hz (for Europe.: Input for transformer box) 1ø 100V 0.5kVA 50/60Hz		

**SPECIFICATIONS (cont.)**

**SPECIFICATIONS OF DEDICATED SYSTEM FOR DIGITAL IMAGING**

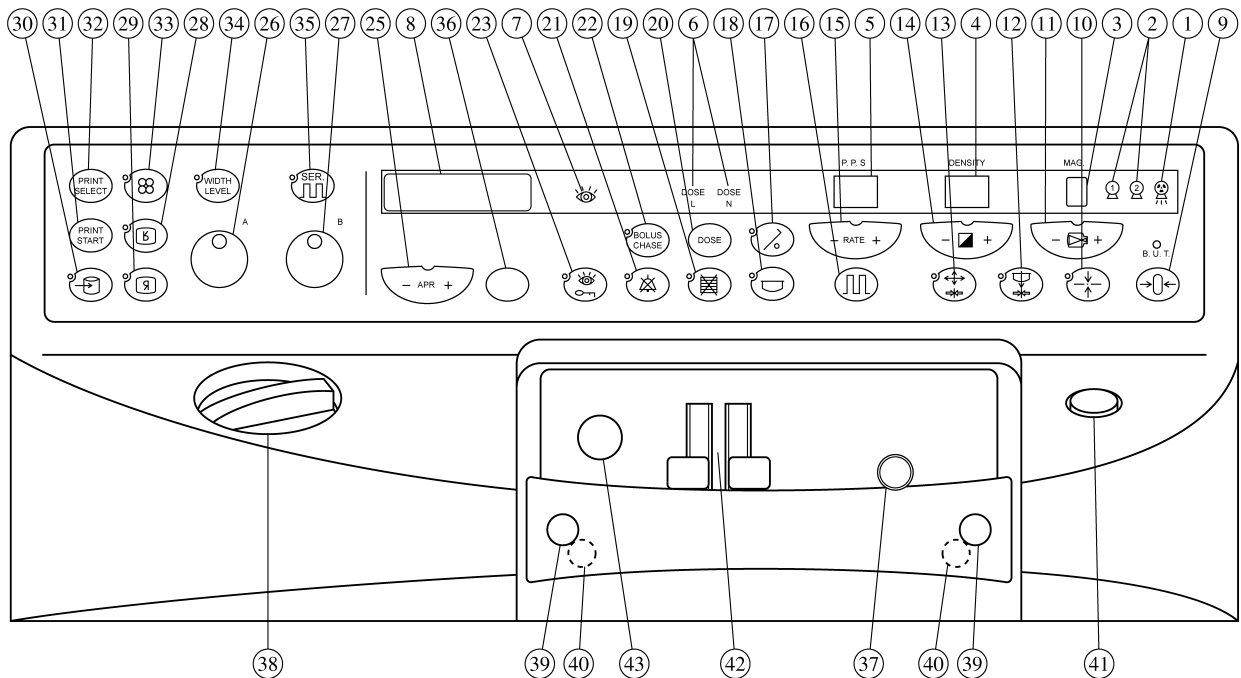
	Item	Content
Fluoroscopy	Continuous Fluoroscopy	Continuous Fluoroscopy for 30fps
	Pulsed Fluoroscopy (Option)	Rate : 30/15/7.5/3.75fps
	Fluoro Store	Direct store/ LIH store/ Loop store: Store fluoroscopy image displayed during fluoroscopy or after fluoroscopy is finished.
	MAP Fluoroscopy (with DSA option)	A fluoroscopy image is superimposed to the fluoroscopy image acquired before.
Radiography	SPOT Acquisition	Single Acquisition
	SERIAL Acquisition	SERIAL Acquisition on Max 15 frames/sec
	DSA Acquisition (Option)	SERIAL Acquisition & Real time subtraction on Max 7.5 frames/sec
	RSM-DSA Radiography (Option)	Real-time smoothed mask digital subtraction
External Output	Output to Laser Imager	Correspond to DICOM print (Allow output to DICOM Laser Imager)
	Output to image server (Option)	Correspond to DICOM storage (Allow output to DICOM server) Format is "RF" or "XA"
	Media output	DVD-R or CD-R (DICOM format)
	MWM (Option)	Receives examination information from the server.
	MPPS (Option)	Sends study result to server.
Image Recording	Digital Disc	Recording capacity: over 10.000 frame (1024 matrix image)
	Removable Storage Device (Optional Accessory)	DVD-R or CD-R

**SPECIFICATIONS OF BUILT-IN BUCKY DEVICE**

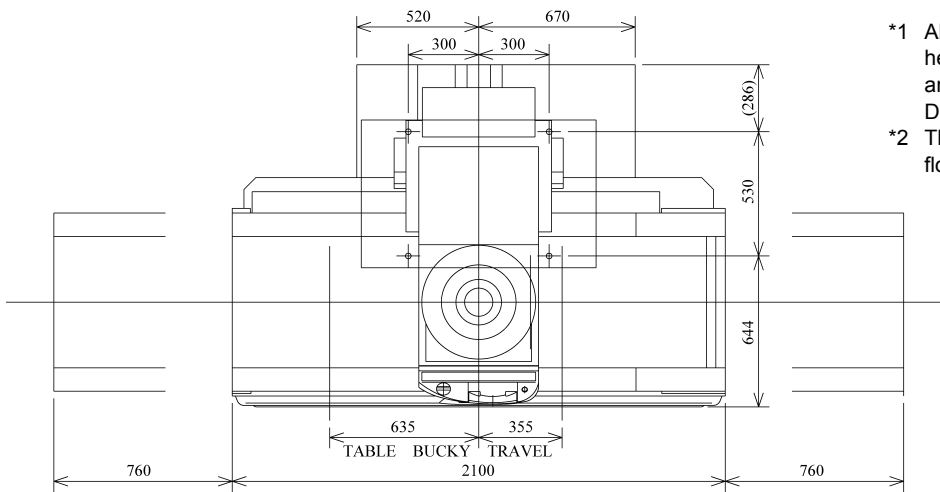
Overall dimensions	590mm wide × 570mm deep × 62mm high	
Travel stroke along tabletop	99cm	
Applicable cassettes	Up to INCH 14 × 17	
Grid (inter-changeable)	Motion	Reciprocating type
	Focusing distance	100cm
	Ratio	10:1
	Strips density	40 lines/cm

## CONTROL PANEL

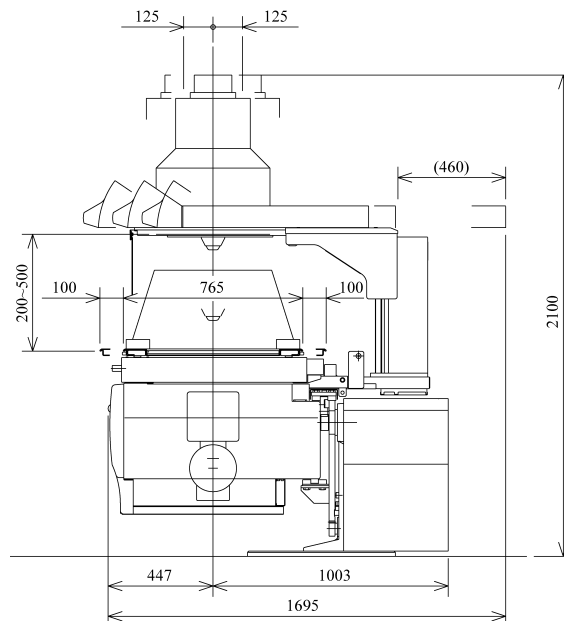
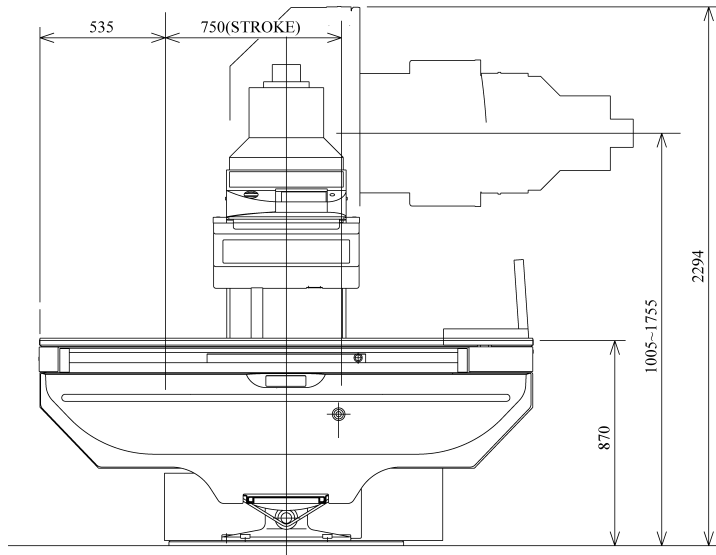
- |   |  |  |
|---|--|--|
| ① Exposure indicator                        | ⑬ Pulsed Fluoro mode switch              | ③① Print start switch                                  |
| ② Selected X-ray tube indicator             | ⑭ Tilt bypass switch                     | ③② Print select switch                                 |
| ③ I.I. Mag. Indicator                       | ⑮ Compression cone IN/OUT switch         | ③③ Multi-Display switch                                |
| ④ Density indicator                         | ⑯ Grid IN/OUT switch                     | ③④ Width/Level switch                                  |
| ⑤ Pulsed Fluoro rate indicator              | ⑰ Dose select switch                     | ③⑤ Serial mode switch                                  |
| ⑥ Dose indicator                            | ⑱ Fluoro timer reset switch              | ③⑥ Not used  |
| ⑦ Fluoroscopy indicator                     | ⑲ Bolus chase mode switch                | ③⑦ Tabletop sliding handle                             |
| ⑧ APR selection indicator                   | ⑳ Fluoro preparation switch              | ③⑧ Table tilting handle                                |
| ⑨ Backup Timer Reset switch                 | ㉑ APR selection switch                   | ③⑨ Exposure switch                                     |
| ⑩ Bucky center lock switch                  | ㉒ Control shuttle A                      | ④① Fluoroscopy switch                                  |
| ⑪ I.I. field size selection switch          | ㉓ Control shuttle B                      | ④① Imaging Control Unit slidepark lock /release switch |
| ⑫ Compression Travel lock switch            | ㉔ Image inversion switch(up and down)    | ④② Collimation open/close handle                       |
| ⑬ Longitudinal / lateral travel lock switch | ㉕ Image inversion switch(left and right) | ④③ Spare switch  |
| ⑭ Density selection switch                  | ⑳ Store image switch                     |  |
| ⑮ Pulsed Fluoro rate control switch         |  |  |



## DIMENSIONS



- \*1 All cables for YSF-300 go out from here, including H.V.cables, I.I.cables and TV cable. Corrugated cable: D=90mmø
- \*2 This is the reference dimension for floor pit.



UNIT:mm

## RECOMMENDED SYSTEM CONFIGURATIONS

R/F Table	FLUOROSPEED 300 (YSF-300), Bucky device
Digital Radiography System	DAR-8000i
X-ray high voltage generator	UD150B-40 or UD150V-40 or UD150L-40
X-ray tube assembly	0.6/1.2P364DK-85SF
X-ray tube starter	SA-60
Image intensifier	IA-12LD (LT) 13 or IA-16 LD (LT, LM) / HS13
Phototime controller	SPT-C42 (UD)
Photo pick-up	SPT-XD-A3B (for Bucky device)
Ceiling Tube Support	CH-200

### Remarks

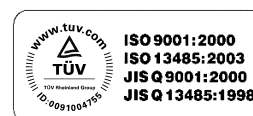
- \* Every value in this Product Data Sheet is a standard value, and it may vary a little from the actual at each site.
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- \* Certain configurations may not be available pending regulatory clearance. Contact your Shimadzu representative for information on specific configurations.



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