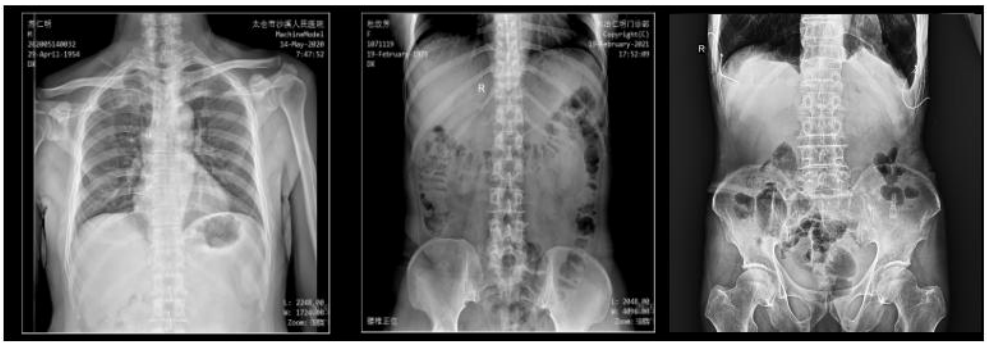
Part 02. Product Description

• Digital Radiography

Meet the radiographic examination of all parts of the human body, including conventional radiography, special radiography (image stitching), precise visual radiography, large-area fracture radiography, and large-scale physical examination radiography, suitable for all clinical departments of the general radiological department.

● Digital Fluoroscopy

Suitable for fluoroscopy of all parts of the body (such as chest, abdomen, etc.),fluoroscopic positioning, fluoroscopic puncture. It is used in gastroenterology, urology, gynecology, etc



● Digital Gastrointestinal Graphy

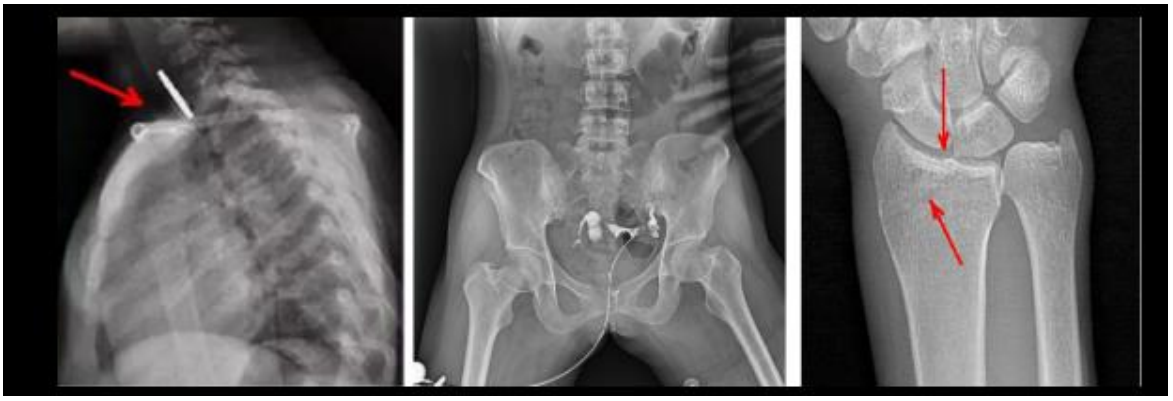
Suitable for gastrointestinal angiography, such as esophageal angiography, upper gastrointestinal angiography, total gastrointestinal angiography, etc. It is mainly suitable for gastroenterology and general surgery.

● Digital Angiography

Suitable for all kinds of general and special angiography, such as oral cholecystography angiography, intravenous cholangiography, T duct angiography, ERCP, IVP, hysterosalpingography, etc., mainly used in digestive surgery, urology, gynecology, etc.

● Visual Radiography

In fluoroscopy, millisecond high-definition spot imaging can be performed, and high-definition images can be obtained through multi-angle dynamic inspection, accurately capturing lesions, and avoiding missed diagnoses and misdiagnosis caused by blind shots; Rapid and accurate positioning of foreign objects, thereby greatly saving valuable rescue time; It has an irreplaceable role in the early detection of occult

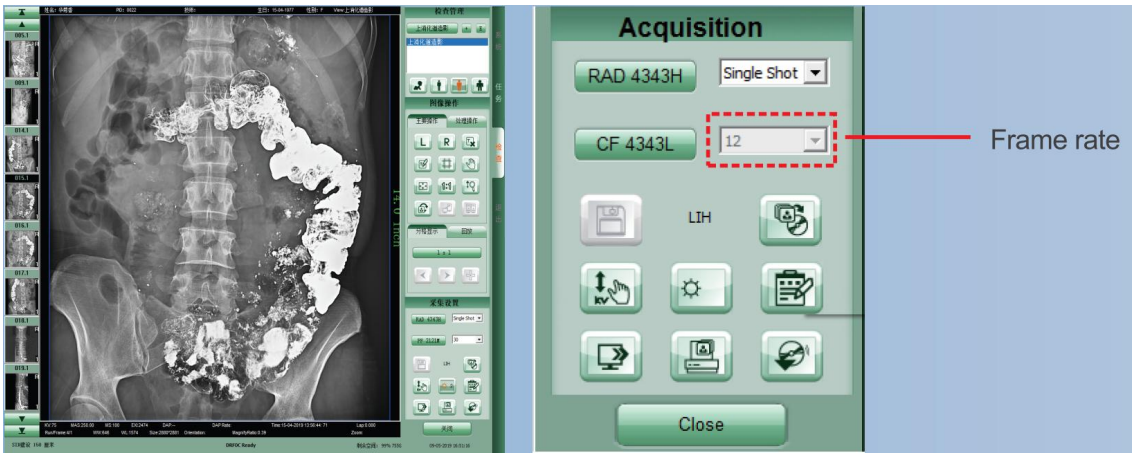


DRF all-in-one machine Application			
No	**Digital Radiography**	**Dynamic Fluoroscopy & angiography examination**	**Others**
1	Chest x-ray-PA	Dynamic cervical spine-Neutral,flexion Extension	Digital Subtraction Angiography (DSA) (optional)
2	Chest x-ay AP& LAT	Dynamic lumberl spine-Neutral,flexion Extension	Image-Stitching
3	Thoracic inlet AP&LAT	Dynamic lumbar spine-Netural, Flexion and Extension	Tomosynthesis (optional)
4	Abdomen-Erect	Fluoroscopy of various parts of the body 全身透视	Dual Energy (optional)
5	Abdomen-supine	Positioning under fluoroscopy 透视下定位	AEC (Optional)
6	Abdomen-erect & supine	Puncture under fluoroscopy 透视下穿刺	DAP (Optional)
7	Ankle- AP& LAT	Gastrointestinal tract angiography 胃肠道血管造影	
8	Leg- AP & LAT	Esophagography 食管造影	
9	Femur- AP & LAT	Upper gastrointestinal tract (GI) 上消化道造影	
10	Knee-AP & LAT	Total gastrointestinal tract angiography 全消化道造影	
11	Hip- AP & LAT	Double contrast barium enema (DCBE) 气钡双重造影	
12	Pelvis-AP	Defecation angiography (DFG) 排便造影	
13	Foot-AP & LAT	Oral cholecystography 口服胆囊造影	
14	Sacroiliac joint- AP & Oblique	Intravenous biliary tract Angiography 静脉胆道造影	
15	Hand-AP & LAT	T-tube angiography T 管造影	
16	Wrist- AP & LAT	Hysterosalpingography(HSG) 子宫输卵管造影	
17	Forearm-AP & LAT	Retrograde Urethrography (RUG) 逆行尿道造影	
18	Elbow joint-AP & LAT	Micturating cystourethrography (MCUG) 排尿性膀胱尿道造影	
19	Humerus-AP & LAT	Intravenous urogram (IVU) 静脉尿路造影	
20	Shoulder joint-AP & LAT	Barium Enema 钡剂灌肠	
21	Scapula-AP & LAT	Barium Swallow 吞钡	
22	Clavicle-AP	Barium meal/follow-through 钡跟踪（小肠餐）检查	
23	Skull-AP & LAT	Distal colostography (DC) 远端结肠造影	
24	Sella turcica-LAT	Pediatric genitography 小儿生殖造影	
25	Mandible-PA & Obliques	Fistulogram 瘘管造影	
26	Maxilla-OM& LAT	Endoscopic retrograde cholangiopancreatography (ERCP) 逆行胰胆管造影	
27	Paranasal sinuses-OF,OM &LAT	Intravenous Pyelogram (IVP) 静脉肾盂造影	
28	TMJ-both LAT with open and closed	Myelography 脊髓造影	
29	Nasal bone-LAT	Intussusception 肠套叠	
30	Mastoid air cell-Townes & Oblique	Pediatrics Foreign body aspiration (FBA) 小儿阴性异物检查	
31	Orbit-PA & LAT	Pediatrics Hypertrophic pyloric stenosis (HPS) 幼儿幽门梗阻排查	
32	Thoracic /Lumbar/Cervical spine-AP&LAT	Cystography 膀胱造影	
33	Scoliosis /Sacrococcygeal spine-AP&LAT	Gastric cancer angiography 胃癌血管造影	
34	Calcaneus /Toes/ tibia/fibula series	Lower Leg Venography 下肢静脉造影	
35	Sinus and facial bone radiography	Urethrography 尿道造影	
	MORE	***MORE***	

2.2 High-quality Digital Image Chain

Item	Content	Technical Parameter
Power	Voltage	380V±38V
	Frequency	50Hz±0Hz
	Capacity	≥125kVA
	Internal Resistance	≤0.17Ω
X-r ator 	Power	84KW
	Inverter Frequency	500KHz±20%
	Radiography Tube voltage	40kV—150kV
	Radiography Tube current	10mA—1000mA
	Radiography Exposure time	1.0~10000ms
	Radiography mAs	0.1mAs—1000mAs
	Fluoroscopy tube voltage	40kV—125kV
	Fluoroscopy tube current	0.5mA~10mA (Continuous fluoroscopy)
		5mA~20mA (Pulse fluoroscopy)
Collimator	View light	LED lamp，DC3.6V/5W
	Brightness	>100Lux
	Visible light illumination	5s ~ 45s(Adjusted).
	Filter	≥1mmAL
X-ray tube 	Model:	***TOSHIBA E7869X***
	Tube Focus: big/small	1.2mm /0.6mm
	Input power	180Hz: Big focus 100kW Small focus 40kW
		50Hz: Big focus 53kW Small focus 21kW
	Anode thermal capacity	420KJ (600KHU)
	Rotary anode speed	9700rpm (180Hz)/ 2700rpm （50 Hz)
	Target angle	12°
	X-ray cover range	430*430mm (SID 1000m)
	Fixed filter	1.1mm Al / 75kV
Dynamic Flat Panel Detector 	Active area	427(H)mm×427(V)mm
	Pixel pitch	139μm
	Pixel matrix	3072(H)×3072(V)
	Limiting resolution	≥3.7LP/mm
	A / D transition	16 bit
	Acquisition speed	**Up to 30fr/s**
	Energy range	40 - 150 kVp
Diagnostic Table	Table tilting range	+90°~0°~ -90°
	Detector vertical movement	1300mm
	Table Elevating	800mm （550-1350mm)
	Table top lateral movement	320mm

	Tube Swing	+45°~0°~ -45°
	SID stretch	1000mm ~ 1800mm
	Loading capacity	200KGS
WorkStation	***Computer System***	Computer: STRIX B250H GAMING motherboard
		Processor: Core™ I7-7500 (3.2GHZ)
		RAM: 8GB DDR4 2400
		Hardware: 1TB
		CD-driver: suit MT's 16X variable-speed DVD for MT +/- RW With functions of double written
		NIC: 1000/100M Fast Ethernet Card Broadcom NetXtreme 10/100/1000 PCIe
		Graphics card: Colorful gtx1050 2G
		PCIe card with serial port and parallel port
	***Color LCD monitor***	24 Inch 2M Gray Scale display
		Revolution1600*1200,
		Dot pitch: 0.294mm
		Contrast ratio: 1400:1
		Brightness: 1900cd/㎡
		Grey feedback time: 5ms
		Visual Angle: 160/170°
Software	***Basic operation:*** Change control console password, edit ID, Acquiring images.	
	Additional operation: Add new check, edit present checking info, add new position, change image acquisition order, multi-checking agreement chance, manual adjustment of exposure parameters, automatic exposure control mode, focus choice, patient body-type choice, tube capacity check, ESA curve choice, image cutting, note added (sent to DICOM workstation), mark on images, rotate or overturn, full-size image observation, check patient info and dose info, accept or refuse images. Digital radiography working mode ,Digital fluoroscopy working mode ,One button switch	
	Image management: Change order, patient basic info editing, inquiry history images, resend history images, re-print history images, check images mark info, review history images, manage refused images, space reclaimed, image protection, and manual image deletion etc.	
	System management: ID edition, change ID password, ED refrigeration set, statistics info checking, detector calibration, equipment control, output order management, image measurement.	



➢ Imported X-ray tube

✧Canon high-speed X-ray tube.
✧Suitable for long-time high intensity exposure.
✧High rotating speed, fast heat dissipation and long service life.

➢ Self-developed high power and high frequency generator

- 500kHz ultra-high inverter frequency, 1000mA maximum tube current, stable radiation output, excellent radiation quality, good imaging effect.
- High-power high voltage generator to ensure high quality and stable radiation output.
- Guaranteed after-sales service, low maintenance costs.

➢ Dynamic FPD

- A dynamic FPD, realizing radiography, fluoroscopy and angiography functions;
- 17”*17” ultra-high-definition pixel dynamic FPD, larger field of view, no need to move to observe the entire dynamic process;
- Advanced and efficient dynamic flat panel technology, the image with no geometric distortion, providing high-resolution and accurate images and accurate basis for clinical diagnosis;

- The maximum frame rate up to **30 fps**, clear and smooth dynamic acquisition, avoiding missed diagnosis and misdiagnosis;
- In the process of visualization or replay, if suspected lesions are found, millisecond high-definition spot shoots can be carried out to capture single-frame images at any time and accurately capture lesions, so that doctors can further diagnose and analyze, reduce misdiagnosis, and help to quickly compile reports.

➢ Automatic Electric Collimator

✧ Quickly select and preset the desired field of view, saving time in positioning;

✧ According to shooting needs or technicians' usage habits, one key switches the beam range, efficient and convenient. The conventional beam limiter can only automatically switch the two beam ranges of radiography and angiography, and the automatic electric collimator can automatically adjust the beam size according to different body position, which is more intelligent and greatly improves the inspection efficiency.

➢ Double high-density grids

✧ The function of the high-density filter grid to filter scattered rays is better, which can further improve the image quality;

✧ Two high-density grids as standard, special distance dedicated;

✧ The grid can be removed for low-dose examinations.

2.3 Intelligent Multi-functional Mechanical Design

Elevating table top min 55cm to the ground, Max 1350cm

1.it is convenient for the elderly, children, critically ill patients, and those with mobility issues to get on and off the table. greatly reduce the work intensity of medical staff, bringing patients and medical staff more comfortable examination. Experience.

2. Avoid second injuries: the height of hospital transfer bed is around 55 cm normally, our equipment can be elevated lower the height, so that the patient can directly move over without lifting it up, saving manpower; avoiding second injuries during the movement,

3. Up to 1350cm is convenient for doctors to operate near the table by adjusting different heights according to needs, making the doctor's operation more comfortable and various angiography more convenient, especially like ERCP

Tube stand swing ±45°

With the function of tube swing arm, it can take angle films of special parts such as the root of the ankle and the axis of the patella. At the same time, ±45° is the largest swing angle in the industry. It can shoot more special parts and expand the scope of the hospital's business.

The SID can be able to stretched to 1.8 meters

to meet the needs of various filming distances in the radiology department, and only such products can be used as both DR and digital gastrointestinal.

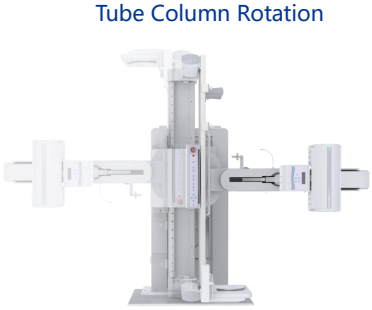


Table tilting ±90°

The larger the lifting range, the better the flow direction and speed of the contrast agent can be controlled. it adopts the dual-motor axial symmetry design, which runs more smoothly and with less noise, which can bring more benefits to patients and operators. Comfortable inspection experience, and can effectively extend the service life of the machine. In addition, the ultra-large range of ±90° is more effective for angiography of special parts of the human body, such as myelography, colonic double-gas barium angiography, etc.

Rotating foot pedal

360°rotating foot pedal

With the humanized design ,doctors can remotely adjust the patient's position by remote control in the compartment, especially for patients who cannot cooperate. Avoid cross-infection, and bring a more comfortable inspection experience to patients and medical staff.

Free Column

Free column moving

Whether it is working in DR or DF mode, the electric moving subject can match the irradiation field in a more suitable position, which is more efficient in clinical operations, especially for obese subjects.

2.4 Intelligent System

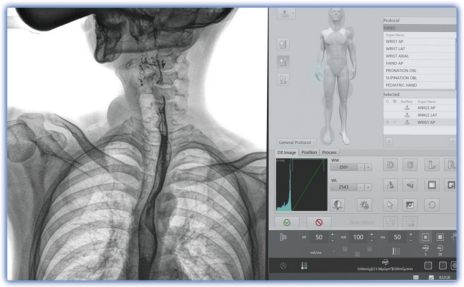
➢ LCD Touchscreen Workstation

- ✧ It can not only adjust the exposure parameters, but also control the bed and tube movement by remote sensing, which is convenient for doctors to carry out clinical examination with extremely high intelligence
- ✧ All operation buttons are accompanied by text and icon prompts, which is simple and convenient.

➢ Efficient and Convenient Software Operating System

- ✧ Intelligent image acquisition and processing workstation, with integrating registration, radiography control, image processing and transmission, report printing and other functions.
- ✧ Humanized menu design makes the operation more convenient. It can switch fluoroscopy.
- ✧ and radiography with one button to optimize the workflow.
- ✧ Excellent image post-processing technology, effectively reducing the dose and improving image quality.

LCD Touchscreen Workstation



Software Operating System

➢ Mechanical Movement Remote control

Smart control joystick

Table-side buttons

➢ Intercom Speaker System

- Easily talking with patients for How to adjust positioning When doing fluoroscopy with Contrast.

2.5 Optional powerful functions

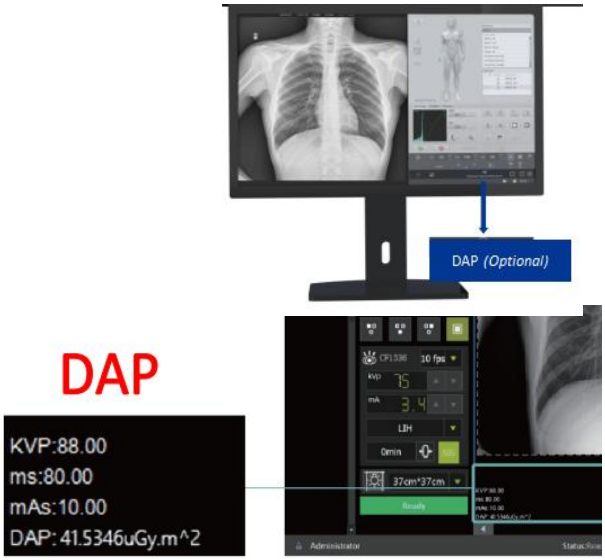
➢ DAP Function *(Optional)*

DAP monitoring•Visualized data for safety and health

✧ The first industrial manufacturer to adopt DAP monitoring system with deep technical accumulation.

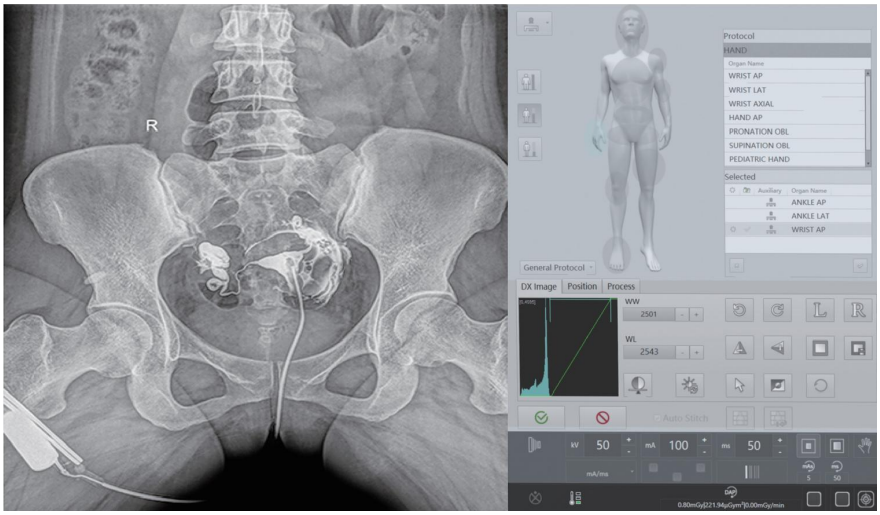
✧ Intelligent DAP monitoring system can record the single examination dose and manage the radiation absorption of patients.

✧ DAP monitoring is an important functional index to measure the quality of X-ray machine, and it is also a necessary function to export to European and American countries.



➢ AEC Function *(Optional)*

- ✧ AEC function automatically controls the exposure time, which can make the images taken by different parts and different patients have the same amount of light, and completely solve the problem of inconsistent photo sensitivity.
- ✧ The operator does not need to select parameters, reducing the operation difficulty and shortening the workflow, especially suitable for large-scale physical examinations and large-scale outpatients.
- ✧ Automation and intelligence are the development direction of all electrical equipment.

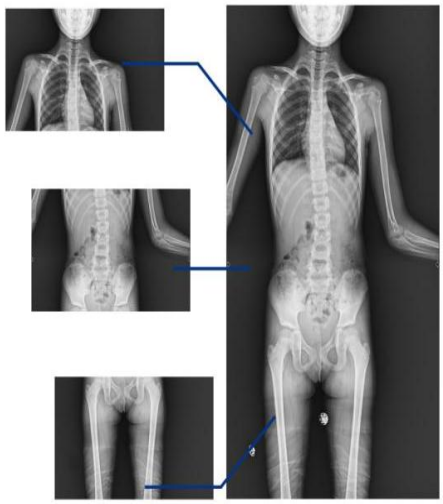


➢ Image Stitching *(Optional)*

✧Panoramic stitching of full lower limb or full spine images.

✧A reliable basis for preoperative planning and postoperative review in the treatment of spinal and lower limb deformities.

✧It provides an important data reference for the formulation of preoperative surgical plans and the evaluation of postoperative effects such as scoliosis and loading bone orthotics, knee prosthesis, and hip replacement surgery.



➢ Specialized Surgical Console *(optional)*

✧ It can be operated by doctors near the equipment, shortening the distance between the machine room and the operation room.

✧ It is convenient for doctors to observe the patient's condition in real time and carry out reasonable operation, which brings great convenience for carrying out interventional surgery and improving operation efficiency.

Part 03. After-sales Service

Since its establishment for 20 years, the company has provided high-quality products and services to nearly 10000 customers around the world!

Services and Support

Move forward steadily, keep improving

Professional service team for pre-sales, in-sales and after-sales

More than 100 overseas local engineers in 60 countries

More than 100 Chinese after-sales engineers serve the world

Cooperate with professional sea, air and land logistics to ensure safe delivery

Part 04. Worldwide installation