

Technical Specifications

Radiography Machine (with out fluoroscopy)

Description of Function:

A fully digital radiography system capable of detector exposure in vertical, horizontal and oblique positions to perform general radiography. The unit should be completely integrated (integrated Generator and Image Acquisition) and comprise the following along with auto quality control features incorporated.

Operational Requirements

- Fully Digital radiography with image processing unit.
- An integrated direct-to-digital Flat Detector based on amorphous silicon technology or equivalent.
- A separate workstation for image positioning and patient demographic data is required
- The workstation should be able to send, receive and print according to DICOM (Digital Imaging and Communications in Medicine) standards.
- The workstation should also be able to obtain DICOM modality, work list from connected information system and send information about performed procedure to the connected information system
- Read and Write in CD/DVD for data Storage and review.

Technical specifications:

Radiography:

- KV: 40 – 150
- Precision 2 %
- Protection level against electric shocks: type B
- mA: 10 to 800
- mAS maximum: 600 per exposure
- ripple: 4 % peak to peak at 100 KV
- minimum time: 0.003s
- power 80KW approximately

Vertical Bucky Stand

- Oscillating grid rate 10/1.FF.150cm (with predisposition every types)
- balanced at counter weight
- The unit should be provided with vertical bucky having tilting facility
- It should have built in flat detector system of at least 40x40 cm size
- It should have automatic exposure control

Radiographic table:

- oscillating grid rate 10/1.FF.150cm (with predisposition every types)
- balanced at counter weight
- table movement : 4 ways with breaks
- easily installable and good assembly
- assembly of spot film device and image intensifier should have smooth movement with breaks.

Remote control panel includes the following features:

- Pre-seated value indication for KV, mA, S and mAs for flours and reading
- Automatic exposure
- Tube number
- Validation /invalidation key for the automatic
- Tube readiness for exposure
- Prohibition of exposure

Protection devices:

- Overload
- Broken filament
- Abnormal rotor
- High voltage arcing

Radiography high voltage adjustment

- 40.....150 per unit of 1 KV

Radiography high voltage current adjustment (12 values or nearest)

12 valves: 10mA, 20mA, 30mA, 40mA, 50mA, 100mA, 150mA, 200mA, 300mA, 400mA, 500mA, 600mA

mAS display:

- The mAs are displayed according to the constant chosen an optional display of the mAS accumulates during the exposure the mAs are also displayed during an exposure when using the automatic exposure controller.

Operation Indicators:

- All settings for kV, mA, s, mAs
- X-ray emission in radiography
- Heating error/power supply fault
- Indication of an exposure due to an overload/tube temperature
- Small focus and large focus
- Indication for the cassette carriage surface driven position to be at the radiation source during spot film exposure.

Error code display:

- Tube overheating
- High voltage, power supply not ready
- Exposure request which exceeds the max power the generator exposure request for too many mAs for the exposure
- The exposure is impossible due to the absence of the emission characteristics of the tube

Detector System:

- The detector should be solid state flat detector of latest technology.
- The size of the detector should be 40 cm x 40 cm or more.
- The resolution should be minimum of 3.5 lines pair/millimetre.
- The pixel size should be 140 um or less.
- Detector Quantum Efficiency (D.Q.E) should be more 55% @ Zero Line pairs.
- The active matrix size should be 3k x 3k or more.

Image acquisition and image processing based on body part and viewing position:

- The digital workstation should be based on the latest high speed processors of at least 32 bit.
- It should have the possibility of acquiring the image from the detector system.
- The system should have ready DICOM interface and networking capability
- . Post processing function must be available.
- 1+4)Workstations . One state of the art, latest Pentium systems, Minimum 2 GB RAM, Medical grade monitor supported by all the necessary software for all the various DR functions , and four additional fully networked Workstations with high resolution monitors.
- Dry Laser camera 500 dpi or more for printing the digital images should be available.
- A CD-R/W based long term archiving must be offered along with 1000 No. of CD's.

System Configuration Accessories, spares and consumables

- X-ray unit with x-ray generator, x-ray tube and other parts -1
- Bucky stand -1
- Radiographic table 1
- Flat panel detector-1
- Image acquisition Workstation- one main and four additional fully networked workstation with high resolution.
- Archiving System 01
- Dry Laser camera 500 dpi or more for printing the digital images -01
- Apron -3
- Lead glass for installation and configuration of the machine
- And all standard accessories for standardization and configuration of the system must be provided along with the system.

Environmental factors

- The unit shall be capable of operating continuously in ambient temperature of 30⁰C and relative humidity of 80%
- Proper X-Ray shielding should be provided for the main equipment.
- Pre Requisites should be clearly spelt out in terms of the machine's room requirements.

Power supply

- Suitable Power input to be 220-240VAC, 50Hz OR 3 PHASE of appropriate rating

Standards and safety and training

- Should be approved product by standard or control
- Electrical safety conforms to standards for electrical safety
- Safety aspects of Radiation dosage leakage should be spelt out
- Certificate for calibration should be provided.
- Installation, training and after sales service of the product must be provided (the supplier must confirm with official letter along with the bid)

Documentation

- The supplier must provide User manual in English
- Attach original manufacturer's product catalogue and specification sheet. Photocopy/ computer print will not be accepted. All technical data to be supported with original product data sheet. Copy and paste of Client specification will result in the rejection of the bid.
- The supplier must provide List of important spare parts and accessories with their part number and costing along with the bid