सत्यमेव जयते

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## EXPRESSION FOR INVITING QUOTATION

**Subject: -** Expression of interest are invited to provide the Rate quotation for DIGITAL RADIOGRAPHY (DR) SYSTEM WITH HIGH FREQUENCY X-RAY MACHINE (32 KW) as per specification attached.

The Employees' State Insurance Corporation (ESIC) is a statutory body under Ministry of Labour and Employment, Government of India. The main objective of the organization is to provide certain benefits to organized sector employees in case of sickness, maternity and 'employment injury' and to make provision for certain social benefits etc

ESIC Model Hospital Nandanagar Indore in the midst of procuring DIGITAL RADIOGRAPHY (DR) SYSTEM WITH HIGH FREQUENCY X-RAY MACHINE (32 KW) ON GEM PORTAL for which specification have been prepared and details of the specification have been given below: -

**SPECIFICATION OF DIGITAL RADIOGRAPHY (DR) SYSTEM WITH HIGH FREQUENCY X-RAY MACHINE (32 KW)**

A fully integrated Single Controlled Digital Radiography System with 32 KW High Frequency X-Ray Generator for General Radiography with a Dual Flat Panel Detector along with Table Bucky and Vertical Bucky capable of tacking the complete range of Radiographic Examinations with the following specifications and configurations:

HIGH FREQUENCY X-RAY GENERATOR

32 KW Generator should be of latest technology with high frequency offering 100 KHz or more. Generator should offer 2-point technique and user should have following parameters selection range:

- ✓ KV range should be 40 to 125 KV;
- ✓ mAs range should be 1 to 200 mAs or more;
- ✓ exposure time should be 1 Second to 5 Seconds or better;
- ✓ inbuilt overload protective device must be provided.

FULLY INTEGRATED CONSOLE SYSTEM

Single Integrated console system shall have following functions and indications should be provided. Following features should be available on console:

- ✓ Digital display for display of X-Ray parameters of KV and mAs;
- ✓ KV and mAs decrease and increase switches;
- ✓ Tube focal spot selection switch;
- ✓ Ready and X-ray on switch with indicator;
- ✓ Bucky selection switch;

- ✓ Self-diagnostic programs with indicator for earth fault error, KV error, filament error and Tube thermal overload;
- ✓ Anatomical Programming Radiography (APR) should be provided in which KV &mAs automatically selected depending upon the physique of the patient and part of the body to be x-rayed; and
- ✓ All anatomical programming should be available;
- ✓ A dual action hand switch with retractable cord should be provided;
- ✓ The DR Console should be offered with latest high-end image processing capability console software and high-speed processor with 1 mega **pixel 19"** Medical Grade Monitor. The DR work station should be based on latest high-speed processor of at least 64 bits also have image storage disc of 1TB or more capacity.
- ✓ Selection of Patient demography;
- ✓ Selection of the Anatomical parts to be X-rayed;
- ✓ Windows and Level Adjustments;
- ✓ Annotations must be possible;
- ✓ Previews of images should be available in about 3 Sec or less;
- ✓ Zooming, ROI, Image Cropping and Masking, automatic grid removal function;
- ✓ Soft tissue processing must be possible;
- ✓ Should offer capability of local image storage;
- ✓ Should be capable of connecting minimum of 2 Flat panels simultaneously;
- ✓ Should be capable of connecting directly to the dry laser printer;
- ✓ Full range of basic Image Processing tools such as Zoom, Pan, Window, Annotation;
- ✓ Should have high resolution medical graded monitor with minimum size of **20 inches**;
- ✓ The workstation should be capable of configuring Multi Format images for DICOM Printers;
- ✓ The console should have provision for remote diagnostic capability;
- ✓ Manual Stitching should be possible and be provided with suitable hardware and software;
- ✓ Should have high resolution medical graded monitor with minimum size of **20 inches**;
- ✓ It should have the possibility of acquiring the image directly from the detector system;
- ✓ Dicom 3.0 complaint system, all features mentioned below should be quoted as standard;
- ✓ Dicom work-list management;
- ✓ Dicom print;
- ✓ Dicom query/retrieve;
- ✓ Dicom export;
- ✓ Dicom CD creatuib/DVD creation with embedded viewer;
- ✓ Dicom MPPS (Modality Performed Procedure Step);
- ✓ Easy integration & network capability with the existing /future networking including other modalities RIS/HIS/PACS;
- ✓ Post processing facility must be possible like addition of anatomical marker, image annotation, magnification etc. Please specify all the functions.

TUBE

- ✓ Dual focus Rotating anode X-ray tube with Small Focus 1.0 mm large Focus 2.0 mm.
- ✓ Anode Heat storage capacity of the tube should be 200 KHU or more; and
- ✓ Collimator with auto shut off facility should be provided.

HV TANK

A very compact HV Tank filled with high dielectric transformer oil should be provided. The HV transformer, Filament Transformers, HV Rectifiers & HV Cable receptacles.

## TUBE STAND

- ✓ Floor to ceiling tube stand with counter balanced tube head;
- ✓ It should have movements to make all radiographic positions (erect & supine studies) possible;
- ✓ The horizontal movement for the tube stand should be minimum 200cm;
- ✓ Tube should have minimum vertical Travel of 150 mm with minimum floor to focus distance of 35 cm.
- ✓ Tube should have angulations of minimum ±135° with detents at 0°, ±90°;
- ✓ Tube Head should have SID measuring tape and should have collimation light source.

## TABLE

- ✓ Horizontal table with 4way movement and elevating (optional);
- ✓ Transverse and longitudinal movements of the tabletop should be locked by electromagnetic locks;
- ✓ The Motorized table with bucky of grid ratio 10:1 should be provided;
- ✓ The bucky should cover the entire length of the table & should be locked at any desired position by an electromagnetic Lock;
- ✓ The table top should be made of low radiation absorption, water proof material;
- ✓ Table should be wide with minimum 200cm x 90cm (LxW);
- ✓ Table accessories like stainless steel cassette tray, compression band should be provided;
- ✓ Bucky tray should be equipped with cassette type wireless Flat panel detector of minimum 35cm x 43cm size or more;

## VERTICAL BUCKY STAND

- ✓ Vertical Bucky Stand with oscillating grid ratio of 10:1, to be provided;
- ✓ The Bucky should move up & down and should be equipped with up to 43cm x 43cm (17" x 17") size cassette with wireless Flat Panel Detector;
- ✓ Wall stand should be provided with grid removal option; and
- ✓ The stand should be floor mounted type.

## FLAT PANEL DETECTOR (FPD with TFT technology)

- ✓ The Digital Detector should be latest wireless Flat Panel Detector (FPD);
- ✓ One 14" x 17" sized detector for table and one 17" x 17" sized detector for vertical Bucky should be provided;
- ✓ The detector Scintillator material should be made up of Cesium Iodide (CSi) and sensor with Thin Film Transistor (TFT) and Amorphous Silicon technology;
- ✓ The detector should be water resistance. The detector should have sensor protection and should have ingress protection rating minimum IP 33 or more;
- ✓ Wireless detector provided should be free from any integration with x-ray machine. The same should be able to use with any mobile x-ray machine with dedicated mobile console;

- ✓ The detector should be capable of doing out or Bucky radiography in wireless mode and also Lateral supine Radiography must be possible;
- ✓ The detectors should have high DQE. Provide technical data from manufacturer;
- ✓ The detectors should have a minimum spatial resolution of 2.5 lp/mm;
- ✓ Detector array size: Should be a minimum of 2.0K x 2.0K pixels (optional) or higher;
- ✓ Pixel Pitch: 150 microns or less;
- ✓ A to D conversion: 14 bit or more;
- ✓ The detector offered should be light in weight with less than 4 kgs, enabling ease of use for operations and easy positioning at the time of out of Bucky exposures;
- ✓ Images pre-viewing should be available in about less than 4secs after exposure and the cycle time should be less than 10 seconds;
- ✓ The detector must be capable of working on wireless mode;
- ✓ The battery must be of latest Lithium Ion type. 5 Nos. Batteries along with multi battery charger should be provided. Company should replace batteries free of cost for next 5 years. The battery offered should be replaced irrespective of charge cycle limitations. In case of inbuilt Battery, detector manufacturer should either replace battery or detector in case of any breakdown of battery. Kindly specify the battery type and life of offered model;
- ✓ Detector offered should be capable of handling 150 or more exposures or 8 hours of operation in single full charge;
- ✓ Detector offered should be capable of integrating with any x-ray system or mobile x-ray and should readily be switchable within multiple x-ray machine in case there is breakdown in the x-ray system;
- ✓ The detector should be able to work at normal room temperature and humidity. The detector system should not require frequent calibrations on daily start-up;
- ✓ Offered detector should have load bearing capacity of 150 kgs or more; and
- ✓ Bidder must offer warranty certificate in original issued by original manufacturer for FPD's. The original manufacturer must also give an undertaking the guarantee to support during the entire life of the detector.

ADDITIONAL WORK STATION

- ✓ The digital work station should be based on the latest high-speed processor of at least 32 bits;
- ✓ It should have image storage disc of 1 TB or more and 4 GB RAM or more;
- ✓ It should have the ability of multi format printing;
- ✓ It should have the ability to adjust the contract ratio and add annotations;
- ✓ It should have the ability to print hospital name with patient details;
- ✓ All soft-ware must be licensed permanent.

POWER REQUIREMENT

- ✓ The unit should be operable on 3 Phase, 380/400/480 Volts AC 50Hz with line resist less than 0.4 Ohms. Line Regulation ± 10%.
- ✓ Low power requirement should be furnished by the vendor during bid submission.

MANDATORY REQUIREMENTS

- ✓ The company should be an ISO certified company;
- ✓ The whole system should be USFDA and CE approved and the entire system and model should have AERB approved;
- ✓ **The bidder should itself complete all the formalities pertaining to AERB and provide AERB certificate**;
- ✓ Bidder should have proven track record in Government sector and should have installed similar DR system during last one year. Please provide customer satisfaction report;
- ✓ The bidder and the principal company should have a good reputation and never been black-listed or debarred in any state and central Government organization;
- ✓ If the bidder is not the manufacturer of detectors warranty, support documents should be made available in the form of undertaking from detector manufacturer;
- ✓ Easy availability of spares in India;
- ✓ Trained engineers to maintain and support the system;
- ✓ All specifications to be proved with original product data sheet; and
- ✓ Offered system should have 3 years' warranty from the date of installation and 7 years CMC to be quoted separately.

ACCESSORIES AND TURN KEY ITEMS

Following accessories should be supplied with the machine at the time of installation:

- ✓ Stabilizer of suitable and reputed brand must be provided for DR system;
- ✓ Lead Barrier 1.5 mm equivalent with Lead Glass Window of 2x3 Feet 1 Number should be provided;
- ✓ **The protective devices like Lead Apron (3 Nos.), Lead Gloves (1 No.), Thyroid Shield (1 No.) and Lead Goggle (1 No.) should be provided.**
- ✓ Dry Laser Technology Imager with 500 dpi or more with minimum 2 online universal tray to be provided. Each tray should print minimum 4 sizes;
- ✓ One Packet of films of each size should be provided;
- ✓ Suitable online UPS for providing minimum 30 minutes power backup for console, work station PC & printer (2KV online);

Based on specification mentioned above, ESIC Model hspital & ODC Nanda nagar is inviting expression of interest to provide rate quatation.

**The manufacturer/Authorized vendors can send their rate quotation based on specification by Email to Medical Superintendent, ESIC Model Hospital & ODC Nanda Nagar on Email id ms-indore@esic.nic.in within 07 Working days from the date of publishing on ESIC Website.**

On the basis of Specification and Rate, procurement will be done on Gem Portal as per the term and condition of Gem Portal.

01/12/2023

**Medical Superintendent**
**ESIC Model Hospital & ODC**
**Nanda Nagar, Indore (MP)**