CLIENT NAME:

TAPAN MUKESHBHAI PATEL MEMORIAL HOSPITAL , MEDICAL COLLEGE AND RESEARCH CENTER, SHIRPUR

RADIOLOGY TENDER

TENDER DOCUMENT:
SVKM/TMPMH/Mammo/008

SECTION 2 – SPECIFICATIONS

1. DIGITAL MAMMOGRAPHY UNIT

S.No	Specification as per Tender
	Full field digital mammography system with state of the art facility for detection of breast cancer with lowest possible radiation dose. It should be an advanced high-end digital mammography machine and capable of doing 3D tomosynthesis. The machine should have facility of digital stereotactic biopsy system and should be able to deliver high resolution image quality.
	The equipment should be of latest technology. The future software up gradation should be provided in the offered machine as and when launched by the company without any additional cost for a period of 5 years handing over the machine.
	All technical specifications must be supported with printed technical literature and product data sheet. If the required information is not available in the Product Data Sheet and printed technical literature, the same has to be authenticated by the competent authority of the principal manufacturer. In case of discrepancy, the decision of the technical committee shall be final and binding on the supplier.
	The detailed specifications that follow shall be understood to be the minimum requirement and any additional feature of the equipment offered should be specified separately which has to be offered as a standard without any extra cost. Such additional features if beneficial to the department and patients for better clinical application will be given due consideration.
	Third party item's literature is mandatory.
	The comprehensive offer should comprise delivery, installation and satisfactory performance of the fully functional equipment including accessories for at least one month prior to handing over the complete equipment. The warranty period shall start on the day of the handing over of the fully functional machine to the institution.
I	X-RAY GENERATOR:
•	High frequency generator.
•	Power output should be 5KW or more.
•	mA range upto100 (large) 25 (small).
•	mAs range 4-500mAs,
•	kV range, 22kV to 35 kV or more. It should be in 1kV steps or less.
•	Exposure time range to be mentioned.
•	Displayed parameters kV, mAs, target filter, density selection. Auto record of the exposure parameters for each mammogram.
II	X-RAY TUBE UNIT:
•	Single track with Dual focus XRay tube
•	Minimum of two focal spots of size 0.1mm and 0.3mm on the anode are required. Please mention the material of anode.
•	Anode heat storage capacity should be at least 150 KHU.
•	Specify the Inherent filtration used in the tube.

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•	Mention the tube heat monitoring system/ device or program
III	GANTRY ASSEMBLY:
•	The system should be isocentric with fully motorized rotation and up / down movement.
•	The angle of C-arm movement should be at least +180° to -150°.
•	The patient compression device should be motorized, automatic, controlled by foot paddles as well as from gantry and should have multispeed variable system. There should be provision for motorized and manual compression with digital display of compression force and compression thickness. Mention the compression modes available along with force range. The compression should be extremely smooth and there should be automatic decompression at the end of each exposure with facility of release of compression force in case of power failure or emergency stop.
•	Control buttons for adjustment of height and angles should be operable from gantry as well as from foot paddles.
•	SID 650mm to 700mm.
•	Programmable auto positioning from acquisition work station should be available.
•	Should have facility of collision protection.
•	Magnification factor should be minimum 1.5 or more
•	Grid ratio should be 5:1 with at least 30 lines per cm.
•	Motorized installation and removal/ auto retract of grid/ breast support assembly system should be available for geometric magnification.
•	The following paddles one each should be supplied as standard.
	a. Large paddle for 18x24+/-1cm
	b. Large paddle 24x30 cms +/-1cm
	d. 1.8 Magnification attachment with spot and field magnification paddles
	e. Axillary compression paddle.
	g. All other additional paddles specific to particular vendors' machine available have also to be supplied as standard.
IV	EXPOSURE CONTROL
•	Should have manual, semi-automatic and automatic mode (AEC) techniques with flexibility to select parameters manually, automatically or in combination.
•	The anode track and filters shall be selected automatically and manually.
•	Should have the display facility of all parameters after exposure.
•	Should display the dose delivered after exposure.
V	FLAT PANEL DETECTOR
•	Should have a large flat panel detector of size at least 24x30 +/-1cm and the pixel size should be100 micrometer or less.
•	Detector technology and material used should be mentioned.
•	Image matrix in pixel should be mentioned.
•	Please mention the expected life time of the detector.
•	No Ghosting or lag effect should be present; Image bit depth should be at least 12 bits.
VI	DIGITAL ACQUISITION WORKSTATION WITH SINGLE/ DUAL MONITORS (DEPENDING ON VENDOR CONFIGURATION):

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•	Storage capacity should be 8000 images or more
•	The following imaging processing should be possible on the work station:
	a. Measurements
	b. Zoom, roam, magnification
	c. Brightness and contrast
	d. Image inversion
	e. Contrast enhancement processing
	f. Flip rotate inward
	g. Annotations, measurements
	h. Image evaluation like contrast enhancement histogram display, length measurements before and after comparison etc.
	i. Filming from acquisition work-station should be possible.
•	Time to display image and time between two exposures to be mentioned.
•	Should provide large, at least 19 inches medical grade LCD image monitor with high luminance.
•	State of art associated software technology should be available with the data acquisition system. Kindly mention the features, advantages and upgradability.
•	It should be possible to receive the demographic patient data directly from Hospital Information System. The demographic patient data should also be able to be entered manually. Retrieval of images from CD, DVD or PACS should be possible.
•	It should be DICOM ready and mention the facilities related to connectivity.
•	Tele radiology should be possible.
•	Film prints and CD, DVD copying should be possible.
VII	REPORTING WORK STATION AND ARCHIVING
	The following monitors required are in addition to the acquisition workstation including monitor / monitors (depending on vendor configuration of acquisition console):
•	Two high contrast 5 megapixel medical grade monitors.
•	Another multimodality viewer for display of ultrasound, MRI images
•	Kindly mention whether work station can do an immediate image display.
•	The following imaging processing should be possible on the work station also:
	a. Measurements
	b. Zoom, roam, magnification. Quadrant zooming or selected zooming function should be available
	c. Brightness and contrast
	d. Image inversion
	e. Contrast enhancement processing
	f. Flip rotate inward
	g. Annotations, measurements
	h. Image evaluation like contrast enhancement histogram display, length measurements before and after comparison etc.
	i. Filming and CD, DVD copying should be possible
•	There should be a DVD ROM drive; The RAM should be minimum 4GB. The

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	storage capacity should be more than 8000 images. Hard disk capacity should be expandable.
VIII	STEREOTACTIC BIOPSY SYSTEM (OPTIONAL)
•	The system should be patient comfortable, efficient and accurate with good image quality.
•	Should be possible in upright position.
•	Should have facility for needle core biopsy, fine needle aspiration and wire localization.
•	Should be based on the main imaging detector.
•	Ergonomically designed high quality Mammography positioning chair for screening and biopsy procedures capable for lateral biopsy also.
•	Should have facility to do stereotactic biopsy automated on all the three axis.
•	The needle guides for fine needles and needles for core biopsy of 14G and 16G should be supplied.
•	Biopsy compression plate with window for vertical needle guidance and compression plate without window for lateral guidance to be provided.
•	Tube swivel range minimum of +15 to -15 degree.
IX	TOMOSYNTHESIS
•	Inclusive of any specific tomosynthesis compression paddles if required
•	Pls specify the scan angle
•	Scan time- Please specify the scan time
•	Number of projections- Please specify
•	Distance between reconstructed slices-1mm or less
•	Display on the Workstation monitor-projections, reconstructed slices, cine mode, dose per projection, dose per scan
X	MISCELLANEOUS
•	Should be supplied with transparent lead radiation shield, face shield, remote service modem, quality control tool kit, user manual, technical documentation etc.
•	Dedicated online UPS for the entire machine and accessories supplied including the work station shall be provided for a minimum backup of 30 minutes.
•	Should be supplied with ACR phantom, phantom for calibration of AEC, phantom for calibration of image detector.
•	The digital mammography unit with all features as per specification as well as the stereotactic system and Tomosynthesis should be European CE/ FDA approved.
•	One dedicated mammography view box with shuttering along four corners, luminous intensity 4000cd/m3, and minimum of 4 films display.
•	The offered unit and its installation must conform to AERB guidelines and site approval plan from AERB has to be done by the company at no extra cost.
•	Onsite Training -The application specialist of the company should stay at the site at -least for 4 -5 days at the time of installation to train all faculty members and technicians in machine operations and other procedures.