CLIENT NAME:

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

RADIOLOGY TENDER

TENDER DOCUMENT:

SVKM/TMPMH/CATHLAB /003

SECTION 2 – SPECIFICATIONS

1. High-end Flat Detector Cath-lab System (cardiology)Gantry:

- **Floor/ Ceiling suspended** for free better maneuverability. Facility for motorized positioning/rotation of stand from the floor base/ceiling pivot by +/-90 degrees for improved workflow and for ease of operation from both left and right side of the patient in addition to zero degree normal head end position. Patient access should be possible from either left or right side.
- Gantry should move at 18 deg/sec or higher rotation speed with non-contact type patient guard mechanism (no collision protection switches). Gantry rotation/angulation +/- 120 deg and +/- 45 deg respectively.
- Storage and recall of 2 gantry positions for PTCA should be possible. Gantry depth should be equal to or more than 90cm.

Table:

- Motorized up/down, free floating 4 way table top, least radiation attenuation, atleast250kgs + atleast 50kgs of additional weight for resuscitation in the metal free overhang area without having to retract the table back on its base. Table should be strong enough to sustain Any position CPR .

Detector:

- Size of Flat panel detector should atleast 10 inches diagonal and Flat Detector should be of latest generation, 2480X 1920 or above matrix at 16 bits with 7 formatsof zoom.
- DQE of the entire detector: atleast 70 %, higher preferred: pls specify spec
- Min Pixel pitch of at least 170 µm, lower preferred for better resolution

Image Processing & Storage:

- At least 100,000 images on line in 1024 X 1024 matrix with immediate replay to be available in the main system hard disk (not reckoning the storage space in the CD station).
- Images can be acquired at 3.75/7.5/15 images per second speed both in fluro andcine acquisitions.
- Pulsed fluoroscopy should be available at above frame rates.
- Advanced image processing technique for

  - Real Time Edge Enhancement
  - Real Time Harmonization
  - Real Time Noise reduction and Dose Correction Algorithms

- All above techniques must be applied real time in fluro as well as acquisition - Pls confirm
- Clinically validated QCA online in the exam room. It should be possible to do QCAfrom table side.
- It should be also possible to do QCA in the console room.
- System should be capable of virtual collimation of the shutters and wedges in thelast image to reduce the xray dose.

- System should be capable of measuring and displaying patient dose.
- System should be capable of storage and display of dynamic fluro sequences.
- System should be capable for printing /sending dicom images on to a dicom printer/laser camera.
- Lower frame speeds of 1, 2, 4 or 6 images/sec for carotid/renal/abdominal aortic applications:
  - True On-line DSA at above selectable frame speeds
  - System should have road mapping facility wherein subtracted roadmap is superimposed on live fluoroscopy.

X-ray Tube:

- A noise-free, grid switch, oil cooled, rotating anode x-ray tube with spiral groove bearing and liquid metal lubricant for faster cooling should be provided.
- Anode Heat Capacity: at least 2.0-5.2 MHU
- Cooling rate or heat dissipation in kW should be at least 7500W : Highest preferred
- Additional beam filtration of at least 1.0 mm Cu equivalent. Different filter sizes protocols to be freely selectable by cardiologist at the table side. The filters shouldnot reduce in thickness with increase in patient thickness or in deep angulation.
- X-ray tube should have secondary grid switching.
- System should be capable of delivering minimum 3000W continuous fluoro power

Monitors:

- 18" LCD-TFT Monitors in exam room for live and roadmap images in exam room with monitor suspension movement across either side of the patient table as well as head/foot end.
- The monitor carriage should have motorized up/down movement for fixing the monitor at eye level
- TFT Monitor for live image review in control room.
- An additional monitor for patient database is must for user friendly patient entry without inhibiting live fluoroscopy viewing on slave monitor.
- System should have facility to do rotational Angiography where in the gantry can automatically rotate 90degrees or more while doing parallel acquisition. The rotational scan speed should be minimum 55deg/sec.

- Better Stent Viewing HW and SW to significantly improve localized stent visibility in addition to any inbuilt software for stent visibility improvement.
- Stent viewing SW should have capability of showing fade-in fadeout of lumen forbetter stent visibility in relation to coronary artery wall.

CD Recording and Archival workstation

- DICOM 3.0 based CD and DVD recording for dynamic cardiac image recording on CD. CD review of DICOM CD's. CD's to have review software embedded for instant reviewin any PC
- System should have ability to record DSA runs on the CD and the embedded viewershould support review of these DSA runs at referring physicians PC.

Injector – Reputed Make with 2 nos. reusable syringes

The injector is accomplished with micro-processor control of the flow rate the volume and the

pressure. A dual turret syringe system is applied suitable for 2x150 ml disposable syringes

- Flow rate can be set in ml/sec. ml/min. and ml/hour.
- Display of achieved rate volume pressure and time.
- Constant update and display of total injected contrast per patient.
- Injection programs can be stored and retrieved.

Accessories

- Suitable UPS with 15 minutes backup for complete system.
- Lead Glass window 150 X 100 cms
- A ceiling suspended focus lamp with adjustable arm and removable handle for sterilizing should be provided.
- A remote intercom facility between examination room and console room.
- Doctors, Nurses and operators training at site by specialist from supplier.
- Upper and lower body radiation protection shield.