

DETAILS REQUIRED FOR SUBMISSION OF TECHNICAL BID FOR MRI MACHINE

The MRI machines will be installed at various medical colleges where apart from the usual range of cases seen in a tertiary referral hospital, there will be significant burden of trauma and emergency cases. Accordingly, the technical bid submitted by the OEM should mention the following data, and meet the following minimum requirements (where specified). The model/make should be a recently launched model, likely to be continued in the market for the next 10 years.

MAGNET

- **1.5T active shielded super conductive magnet,**
- **It should have at least 60 cm patient bore with flared opening.**
- **Homogeneity of magnet should be less than 3.5 ppm over 45cm DSV. Actual homogeneity data should be specified.**
- The magnet should be well ventilated, non-claustrophobic and illuminated with built in communication with patient.
- Specify cooling system, boil-off rates and helium refill data.
- Specify details affecting patient comfort, like patient aperture at lowest, at maximum, hand held alarm, and details of patient couch.

SHIM SYSTEM

- High performance, highly stable shim system with global and localized automated shimming for high homogeneity magnetic field for imaging.
- Should provide passive, active and auto shim.
- Please specify details of shim plates and active shimming.

GRADIENT SYSTEM

- Actively shielded Gradient system with **a slew rate of at least 120 T/m/s** and a **peak amplitude of atleast 33mT/m.**
- Specify details of gradient system used, details of maximum amplitudes and slew rates along 3 axes and amplitude at 100% duty cycle.

RF SYSTEM

- A fully digital RF system capable of transmitting power of **at least 10 kw.**
- At least 16 independent RF receiver channels with each having bandwidth of 1 MHz or more along with necessary hardware to support quadrature ICP array/Matrix coils.
- Specify the highest number of receiver channels available.
- Specify details of acquisition techniques available.

COMPUTER SYSTEM /IMAGE PROCESSOR / OPERATOR CONSOLE

- The main Host computer should have a 19 inches or more high resolution LCD TFT color monitor with 1024 x 1024 matrix display
- The system should have image storage capacity of 100 GB
- The reconstruction speed should be at least 1300 or more for full FOV 256 matrix.
- The main console should have facility for music system for patient in the magnet room. The system should have DVD / CD / flash drive archiving facility. The system should be provided with auto DVD writer.

MEASUREMENT SYSTEM

- Largest Field of View should be **around 45 cm in all three axis.**
- The measurement matrix should be from 128x128 to 1024x1024
- slice thickness in 2D and 3D should be as minimum as possible. Please specify.

COIL SYSTEM

- The main body coil integrated to the magnet (must be Quadrature / CP).
- Multichannel Head coils with at least 8 channel for high resolution brain imaging.
- Spine Array/Matrix Coils for thoracic and lumbar spine imaging.
- Body Array/Matrix coil with at least 38 cm z axis coverage. (The best available body coil with the vendor must be supplied)
- Dedicated Knee Coil
- Dedicated Shoulder coil
- Pelvic Coil
- Endovaginal Coil

APPLICATION SEQUENCES

- The system should have basic sequences package with Spin Echo, InversionRecovery, Turbo Spin Echo with high turbo factor of 256 or more, Gradient Echo with ETL of 255 or more, FLAIR.
- Single slice, multiple single slice, multiple slice, multiple stacks, radial stacks and 3D acquisitions for all applications.
- Single and Multi shot EPI imaging techniques with ETL factor of 255 or more
- Fat suppression for high quality images both STIR and SPIR.
- The system should acquire motion artifact free images in T2 studies of brain in restless patients (Propeller, Multivane, Blade etc)
- Dynamic study for pre and post contrast scans and time intensity studies
- MR angio Imaging: Should have 20/30 TOF, 20/30 PC , MTS and TONE, ceMRA, Facilities for Accelerated time resolved vascular imaging with applications like Treats/Tracks/Tricks sequences.
- Fat and water excitation package. Diffusion Weighted Imaging, with at least b value of 5000 or more.
- Non contrast enhanced abdominal and peripheral angiography for arterial flow with Native/Trance/Inhance sequences

