BET MEDICAL (P) LTD.

TECHNICAL COMPLIANCE

Customer Name : **SANJAY GANDHI INSTITUTE OF TRAUMA & ORTHOPAEDICS**
Name of the Item : **IMPORTED MOBILE C-ARM UNIT WITH 3D FACILITY**
Model **: Ziehm Vision Vario 3D**
Manufacturer Name : Ziehm Imaging GmbH, germany

Sr.No	Technical Specification Point Wise	Compliance		Remarks
		YES	NO	
	Specification for IMPORTED MOBILE C-ARM UNIT WITH 3D FACILITY			Model: **Ziehm Vision Vario 3D** Make**: Ziehm Imaging GmbH, Germany**
	Mobile surgical Image intensifier system with true counters balanced and iso-centric C-arm for fluoroscopic and 3D operation facility.	YES		Mobile surgical Image intensifier system with true counters balanced and iso-centric C-arm for fluoroscopic and 3D operation facility.
1	**X- ray Generator and X-ray tube (Specify the name of manufacturer)**	YES		**X- ray Generator and X-ray tube (Toshiba)**
a	X -ray generator should be of high frequency technology. (Specify the name of manufacturer)	YES		X -ray generator is high frequency technology. (**Toshiba)**
b	Fluoroscopy Mode 40-110 KV or more with last image hold 0.2 mA to 15mA or more	YES		Fluoroscopy Mode 40-110 KV with last image hold 1.5 mA to 20mA
c	Digital Radiography Mode 40-110 Kv or more 0.2 mA to 20mA or more	YES		Digital Radiography Mode 40-110 Kv upto 20mA
d	Pulse fluoroscopy upto 20mA with last image hold and variable pulse rate	YES		Pulse fluoroscopy is upto 20mA with last image hold and variable pulse rate
e	Cassette exposures should also be possible.	YES		Cassette exposures are possible.
f	System should have provision for Automatic Dose Rate Control.	YES		System has provision for Automatic Dose Rate Control.
g	Unit should have Iris collimator for concentric, radiation-free collimation	YES		Unit has Iris collimator for concentric, radiation-free collimation
h	X-ray tube should be Single/Dual focal spot type.	YES		X-ray tube has Single focal spot type.
i	It should be possible to carry out continuous fluoroscopy for more than 45 minutes	YES		It is possible to carry out continuous fluoroscopy for more than 45 minutes
j	There should be programs to reduce dose during fluoroscopy. Patient dose should be displayed on the monitor	YES		There are programs to reduce dose during fluoroscopy(ODDC-Object Dose Detection Control inbuilt). Patient dose are displayed on the monitor
2	**C - arm**	YES		**C - arm**

a	Orbital movement 135° **(– 90° to + 45°)**	YES		Orbital movement 135° (– 90° to + 45°)
b	Angulation ± 190° or more	YES		Angulation ± 225°
c	Horizontal movement 20 cm or more	YES		Horizontal movement 22 cm
d	C-arm depth depth **68 cm or more**	YES		C-arm depth depth 68 cm
e	Swivel range ± 10°	YES		Swivel range ± 10°
f	Motorised Vertical movement 40 cm or more	YES		Motorised Vertical movement 42 cm
g	Tube to II distance **87 cm or more**	YES		Tube to II distance 95 cm
h	Radiation indicators	YES		Radiation indicators
3	**X-ray image intensifier**	YES		**X-ray image intensifier**
a	Size 9 inch and zoom to 6" (Specify the name of manufacturer) or **flat panel detector system**	YES		Size 9 inch and zoom to 6" (Toshiba/Thales)
b	It should have good resolution of minimum 18lp/Cm. Vendor should be able to demonstrate this with appropriate tools.	YES		It has good resolution of Central resolution 23-15-10 cm:52-58-68lp/cm.
c	TV matrix 1K x 1K	YES		TV matrix 1K x 1K
d	Continuous Digital image rotation should be possible	YES		Continuous Digital image rotation is possible
e	Digital imaging system with image processing, storage and archival in 1K x 1K matrix	YES		Digital imaging system with image processing, storage and archival **in 1K x 1K matrix**
f	Unit should be provided with Cassette holder.	YES		Unit is provided with Cassette holder.
g	Unit should be DICOM compatible with DICOM viewer, DICOM Print, DICOM Worklist and facility to take data from HIS/RIS.	YES		Unit is DICOM compatible with DICOM viewer, DICOM Print, DICOM Worklist and facility to take data from HIS/RIS.
h	It should be possible to storage 200 digital images in 1K x 1K matrix. It should be possible to save images on CD/Pen drive etc.	YES		It is possible to storage 200 digital images in 1K x 1K matrix. It is possible to save images on Pen drive etc.
4	**Image Viewing**	YES		**Image Viewing**
a	18”or more TFT monitors of madical grade mounted in a trolley (Specify the name of manufacturer)	YES		Two 19” dual flat screen monitors of medical grade mounted in a trolley (Ziehm Imaging GmbH, Germany)
b	Image matrix 1K x 1K	YES		Image matrix 1K x 1K
c	Monitor brightness **550 cd/m 2**	YES		Monitor brightness **1000 cd/m 2**
d	Horizontal / vertical viewing angle 165 deg / 165 deg	YES		Horizontal / vertical viewing angle 178 deg / 178deg
5	**Accessories**	YES		**Accessories**
a	Sterile cover	YES		Sterile cover
b	Lead aprons 6 Nos	YES		Lead aprons 6 Nos

c	Key board	YES		Key board
5	**Unit should be upgradable to DSA with following features (Quote optional)**	YES		**Unit is upgradable to DSA with following Features (Quoted optional)**
a	Digital Subtraction with Roadmap facility.	YES		Digital Subtraction with Roadmap facility.
b	Application specific fluoroscopy and radiography curves for the individual operating modes	YES		Application specific fluoroscopy and radiography curves for the individual operating modes are available.
c	Noice reduction, edge enhancement, auto loop for all fluoro modes, thumbnail review, lookup table for contrast enhancement.	YES		Noice reduction, edge enhancement, auto loop for all fluoro modes, thumbnail review, lookup table for contrast enhancement.
d	It should be possible to storage 5000 digital images in 1K x 1K matrix in DSA option. It should be possible to save images on CD/Pen drive etc.	YES		It is possible to storage upto 10,000 digital images in 1K x 1K matrix in DSA option. It is possible to save images on Pen drive etc.
e	Patient data management	YES		Patient data management
6	**It should be DICOM enabled with**	YES		**DICOM is enabled with**
a	Emergency registration	YES		Emergency registration
b	Pre-registration	YES		Pre-registration
c	Manual patient registration	YES		Manual patient registration
d	Registration via database query (Patient Browser)	YES		Registration via database query (Patient Browser)
e	Registration via DICOM Worklist*	YES		Registration via DICOM Worklist*
f	**3D image acquisition**	YES		**3D image acquisition**
g	Motor-driven orbital movement through **135°** for online reconstruction of isotropic 3D data sets	YES		Motor driven orbital movement through **135°** for online reconstruction of isotropic 3D data sets
h	Rotation time 35 seconds with 45 images/scan	YES		Rotation time 35 seconds with 45 images/scan
i	60 seconds with 100 images/scan	YES		60 seconds with 100 images/scan
7	**Image processing**	YES		**Image processing**
a	Application-specific lookup tables (LUTs) for optimum contrast and brightness			Application-specific lookup tables (LUTs) for optimum contrast and brightness
b	Spatial frequency filtration for edge-enhanced image display	YES		Spatial frequency filtration for edge-enhanced image display
c	Pixelshift, Remask, Landmark (with Subtraction*)	YES		Pixelshift, Remask, Landmark (with Subtraction*)
d	Edge enhancement	YES		Edge enhancement
e	Noise reduction	YES		Noise reduction
f	Motion detection with active noise reduction	YES		Motion detection with active noise reduction

8	**Image display**	YES		**Image display**
a	Split screen facility	YES		Split screen facility
b	Digital zoom, fixed zoom, roaming	YES		Digital zoom, fixed zoom, roaming
c	Image intensifier zoom (optical zoom)	YES		Image intensifier zoom (optical zoom)
d	Digital image rotation	YES		Digital image rotation
e	Movie function for playback of scenes	YES		Movie function for playback of scenes
f	Digital shutters	YES		Digital shutters
g	Left/right and top/bottom image reversal	YES		Left/right and top/bottom image reversal
h	Positive/negative image inversion	YES		Positive/negative image inversion
i	Fluoro loop facility	YES		Fluoro loop facility
9	**3D Viewing**	YES		**3D Viewing**
a	Multiplanar Reconstruction (MPR) With MPR, twodimensional images of arbitraryorientation (axial, sagittal, coronal, oblique, doubleoblique curvilinear) are reconstructed from the isotropic 3D volume	YES		Multiplanar Reconstruction (MPR) With MPR, twodimensional images of arbitraryorientation (axial, sagittal, coronal, oblique, doubleoblique, curvilinear) are reconstructed from the isotropic 3D volume
b	Surface Shaded Display (SSD) suitable for displaying bone surfaces.	YES		Surface Shaded Display (SSD) are suitable for displaying bone surfaces.
c	The viewing angle and location should be freely selected	YES		The viewing angle and location can be freely selected
d	Volume Rendering Technique (VRT) CT-like 3D visualization and easy orientation in the dataset	YES		Volume Rendering Technique (VRT) CT-like 3D visualization and easy orientation in the dataset are possible.
e	3D Image Fusion 3D Image Fusion for the spatial orientation and visualization of a patient's image data that was generated by different modalities at different times.	YES		Complied
f	3D Dual-Monitor Display for 3D and facilitates the viewing and manipulation of two different datasets on two monitors. It should allow the user to compare two series from the same patient.	YES		Complied
10	**Others**	YES		**Others**
a	Company should have local service facility in the state	YES		Company has local service facility in the state(**Bangalore:** Unit No.704, 'A' Wing, 7th floor Mittal TowerM.G.Road, Bangalore -560001. Ph: +91 9590030302 / 9945043352
b	Company should confirm the availability of spare parts for 10 years from the date of supply of the equipment	YES		Company confirms the availability of spare parts for 10 years from the date of supply of the equipment

c	Company should have 24x7 call logging facility with a call centre	YES		Company has 24x7 call logging facility with a call centre
d	Unit should be CE/FDA approved and should also have type approval certificate from AERB	YES		Unit is CE and FDA approved and also has type approval certificate from AERB
e	In case of dealer / distributor, proper authorization from original manufacturer should be enclosed.	YES		Okay, enclosed.

For BET Medical (Pvt.) Ltd.,

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