

Technical Specifications Of C-ARM Machine With FPD

S.N.	Purchaser's Technical Specifications	Bidder's Compliance Sheet		
	Fluoroscopy C-ARM Machine with FPD	Yes/No	Page No. in Catalogue/ Datasheet	Remarks
	Manufacturer:			
	Brand:			
	Type/Model:			
	Country of Origin:			
1.	Description of Function			
1.1.	A mobile C-ARM machine for Continuous fluoroscopy, image storage and retrieval.			
2.	Operational Requirements			
2.1.	It shall operate on AC power supply as well as an inbuilt electronic voltage stabilizer should be provided			
3.	System Configurations			
3.1.	High Frequency 50KHz microprocessor-controlled C-arm machine providing excellent image quality at low radiation, ideally suited for entry level surgery in many application fields such as orthopedics, trauma surgery, basic urology procedures and general surgery.			
4.	Technical Specifications			
A.	X-Ray Generator and X-Ray Tube			
4.1.	High Frequency (50KHz)			
4.2.	Output power should be 3.5KW or more			
4.3.	Fluoro & Rad. KV 40 to 120KV			
4.4.	Max. mA (Digital Radiography)/SPOT: 25mA or more.			
4.5.	Pulse Fluoroscopic mA(peak):- <ul style="list-style-type: none"> • up to 20mA (Fluoro Mode) • up to 25mA (Cine Mode) 			
4.6.	Monoblock tube head having dual focus stationary anode X-Ray tube of focal spot 0.6mm (small focus) & large focus (1.2mm) should be provided.			
4.7.	Anode Heat Storage capacity should be 80KHU or more.			
4.8.	Parallel shutter collimator with Preview Collimation			
B.	Flat Panal Detector			
4.9.	Receptor Type should be of Amorphous Silicon technology			
4.10.	Conversion Screen should be of CsI			
4.11.	FPD with 21 x 21Cm size should be provided			
4.12.	Image Matrix should be 1K x 1K or more			
4.13.	Pixel pitch should be 140 µm or less.			
4.14.	ADC conversion should be 16bit or more			
C.	C-ARM Movements			

4.15.	Fully counter balanced all movements			
4.16.	Rotation: +180 Degrees.			
4.17.	Motorized Up/down: 420mm or more			
4.18.	Horizontal Travel: 200 mm or more			
4.19.	Arc Orbital Movement: 120 Degrees			
4.20.	Wig Wag: ±12.5 Degrees.			
4.21.	Source to Image distance should be more than 900mm.			
4.22.	Depth of “C” should be at least 650mm			
4.23.	Free space should be 780mm or more			
4.24.	01 No. 27” High Resolution Monitor with Split screen mounted on mobile Trolley.			
4.25.	A very compact, soft touch control panel with 20X3 (column x rows) LCD display on which KV, mAs, Fluoro mA, MAG, Heat unit and Various Interlocks e.g KV interlock, Filament interlock and Thermal interlocks are displayed on LCD Screen for self-diagnosis.			
D.	Console Panel should have Following Functions & Indications:			
4.26	Fluoro timer reset Switch (For reinitiate the exposure after 300 sec fluoro timer)			
4.27	Machine ON/OFF switch			
4.28	KV and mAs increase and decrease switches.			
4.29	ABS (Automatic brightness Stabilization) selection for hands free operation-also known as ADR.			
4.30	X-Ray ON Switch with indicators.			
4.31	Switches for up/down movement of “C” on both side of panel.			
4.32	Collimator control switches. (To open/ close Horizontal and Vertical Shutter)			
4.33	Laser centering device			
4.34	Image shift from live view to Reference view			
4.35	Average switch to select the average in software for image as per requirement			
4.36	Exposure lock switch			
4.37	Dose mode selection switch (Full, Half and Quarter mode)			
4.38	Fluoro save switch to save fluoro image manually			
E.	Memory System should include the following: -			
4.39	Image Acquisition: <ul style="list-style-type: none"> • Image processing software with real time image capturing, storage, and display in 1kX1k format. • Variable Frame Rate (1-15) FPS • Boosted fluoroscopy (CINE) at 15 FPS with real time recording on hard disk drive. • Digital Radiography (SPOT) exposure mode is available 			

4.40	Image Processing: <ul style="list-style-type: none"> • Real time noise with reduction with Averaging up-to 16 Recursive filter for image smoothing, DRC, Contrast, Brightness, Sharpness. • Interactive Zoom and Pan • Dynamic Zoom up to 400% • Pre-programming for image setting for different operating Modes • Image Inversion • Dynamic Noise Reduction Filter (DNF) for moving anatomy. • WW/WL level adjustments • Image Flipping and Image Rotation Clockwise or Anti-clockwise. • Fast Automatic Brightness control • Metal Compensation • Cine Loop Play(Auto and Frame wise) • Real time Image Flip(Horizontal/Vertical) 			
4.41	Collimator: <ul style="list-style-type: none"> • Ultra-fast Preview collimator 			
4.42	DAP Module: <ul style="list-style-type: none"> • Software Dose calculator to display total summary for Fluoro/ Cine loops. • Real Time Patient dose monitoring display with overdose warning message 			
4.43	DICOM Features: <ul style="list-style-type: none"> • Connectivity with DICOM workstation/PACS • DICOM Send/Storage Commitment • DICOM Print • DICOM Worklist/MPPS 			
4.44	Storage: <ul style="list-style-type: none"> • Upto 10,000 images • Fluoro saving as per user need • LIH saving as per user need 			
4.45	Annotation: <ul style="list-style-type: none"> • Rectangle • Ellipse • Line • Text 			
4.46	Measurement <ul style="list-style-type: none"> • Stenosis measurement • Length Measurement 			
4.47	PACS Connectivity: <ul style="list-style-type: none"> • Multiple Nodes can be configured. • Single/Multiple Image Tagging to transfer into PACS/ Workstation 			

4.48	Multi-Language GUI Support: <ul style="list-style-type: none"> Application can be configured as Any Language GUI. 			
4.49	Storage & Connectivity <ul style="list-style-type: none"> PC connectivity through LAN port Image storage/ Read through USB 			
5.	Accessories, Spare and Consumables			
5.1.	All standard accessories, consumables and spare parts required for the proper operation of the above item shall be included in the offer.			
5.2.	Bidder shall in a separate document the quantity and details of any items included in this offer which have not been specified in this Technical Specification.			
5.3.	Lead apron-2 nos. Thyroid guard-2 nos.			
6.	Operating Environment			
6.1.	Power supply :220-240 VAC,50 Hz Single Phase fitted with appropriate plug.			
6.2.	The power cable must be at least 3 meters in length.			
6.3.	The inbuilt electronic voltage stabilizer should be provided.			
6.4.	UPS for power backup of the software should be provided.			
7.	Standards & Safety Requirements			
7.1.	Must submit ISO 13485: 2003/AC: 2007 for medical devices.			
7.2.	Must Submit Product's European CE Certificate or US-FDA approved/registered.			
7.3.	The unit should be approved by AERB.			
7.4.	The company should be ICMED certified company.			
7.5	X-Ray generator, detector & software should be from principal manufacturer of quoted unit.			
8.	Warranty			
8.1.	Two years of complete comprehensive warranty on the system and additional one years of free service warranty on the system.			
9.	User Training			
9.1	The supplier shall conduct onsite user training for this equipment to enable operators to use the equipment properly. The training shall include the use of all operational functions of the equipment, as well as routine checks and maintenance expected by user.			
10.	Installation and Commissioning			
10.1.	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified			

	personnel; any prerequisites for installation to be communicated to the purchaser in advance in detail.			
11.	Documentation			
11.1.	User (Operating) manual in English.			
11.2.	Service (Technical / Maintenance) manual in English.			
11.3.	Authorization letter from manufacturing company should be provided.			
11.4.	Authorized sales agent and after sales service must be locally available.			
11.5.	List of important spare parts and accessories with their part number and costing.			
Bidder must completely fill the Technical Specification (TSF) Only Yes /no /all complies should not be written, Page number in the catalogue/Datasheet of all the required parameters must be clearly mentioned and highlighted. Failure in doing so may lead to rejection of bid from technical committee.				