ANX D TO
DGDP TENDER NUMBER 216.07.476.24
DATED: 13 JANUARY 2025

TECHNICAL SPECIFICATION OF C-ARM MACHINE WITH STANDARD ACCESSORIES (DIGITAL) QUANTITY-01, (DP-5)

Ser no	Description	Technical specification	To be filled up by the Principal/ Manufacturer
(a)	(b)	(c)	(d)
1.	**General Specification:** General specifications are as under :		
	a. Nomenclature	**C-Arm Machine with Standard Accessories (Digital), PVMS-210009, Qty-01**	
	b. Brand	To be mentioned.	
	c. Model	To be mentioned. Model should be latest.	
	d. Name of Manufacture with Complete Address	To be mentioned.	
	e. Name of Principal with Complete Address	To be mentioned.	
	f. Name of Local Agent with Complete Address	To be mentioned.	
	g. Year of Production	Not before the calendar year of contract.	
	h. Country of Origin & Manufacturer	**Group-A** (Bangladesh, Australia, Austria, Belgium, Brazil, Canada, Denmark, Finland, France, Germany, Indonesia, Ireland, Italy, Japan, Luxemburg, Netherlands, Norway, Singapore, South Korea, Spain, Sweden, Switzerland, Turkey, UK and USA)	
	j. Port of shipment	Same country of manufacture for Main System. Other Items/ Equipments/ Accessories and Local supplied item to be mentioned specifically.	
2.	**Function/Capability:** Generator should be 60 kHz high frequency power output of 15kW or more with the following modes:		
	a. Fluoroscopy Mode.		
	b. Pulsed Fluoroscopy mode.		
	c. Digital Cine Pulsed mode		
	d. Digital Spot mode.		
	e. The range of KV should be 40-110 KV for each mode		
	f. **mA for each mode should be there as followings:**		
	(1) Fluoroscopy Mode: 0.2 – 20mA HLF		
	(2) Pulsed Fluoroscopy Mode: 0.2-40 mA HLF with Pulse width of 19 ms to 34 ms		
	(3) Digital Cine Pulsed mode with mA range up to 150mA		
	(4) Digital Spot Mode with upto 75 mA		
	(5) Bolus chase preset imaging profile with Motion Tolerant should be there in system.		
	(6) System should be capable of delivering 30 fps cine with recording rate of 4,8,15,30 fps.		
	(7) Minimum recording time up to 60 mins.		
	(8) The Generator should be capable of providing digital Cine Pulse Mode with Pulse rates up to 15 frames/sec with 9ms pulse rate and recording rate should be 4,8,15 fps.		
	g. **X-ray tube should have:**		
	(1) Rotating Anode X-ray tube type.		
	(2) Dual Focal spot with 0.3 mm and 0.6 mm nominal focal spots of nominal value suitable for Fluoroscopy and Radiography.		
	(3) Anode heat capacity should be at least 300,000 HU or more.		
	(4) Housing heat capacity should be 1,600,000 HU or more.		
	(5) Automatic Dose Control should be there.		
	(6) System should have highest DQE (0) at least 72%.		
	h. **Collimator unit:**		
	(1) Shutters/Diaphragm for symmetric radiation free collimation and 360° rotation.		
	(2) Removable grid with on-screen detection status to be provided.		

Ser no	Description	Technical specification	To be filled up by the Principal/ Manufacturer
3.	**Features/Facilities:**		
	a. **C-Arm:**		
	(1) Fully counterbalanced motorized C-Arm movement with integrated cables.		
	(2) The C-Arm should have a Motorized Lateral rotation of +/-180° and Motorized Orbital movement of at least 145° (90°/55°) to allow the imaging chain to accomplish angled projections with the speed of at least 9°/sec.		
	(3) System should have at least 3 position memory recall facility.		
	(4) Horizontal movement: 8.0 in (20 cm) or more		
	(5) Motorized vertical movement: 15.0 in (38 cm) or more		
	(6) Swivel range: 20°		
	(7) Source to detector distance: 39.4 in (100 cm) or more		
	(8) The system should have a minimum of 78 cm free space with the C-Arc to provide a large imaging space.		
	(9) The C-Arm depth should be 82 cm or deeper to provide a large imaging space and C- Arm clearance around the patient and the imaging table		
	(10) System should be equipped with at least 10" or more flat panel LCD touch screen control panel mounted on main frame.		
	(11) System should have Real time Digital Subtraction with roadmap.		
	(12) Facility of Frame-by-frame review, including touch screen slider should be there.		
	(13) System should have Peak opacification and Reference Image Hold.		
	(14) Automatic image playback should be there.		
4.	**Technical Specification:**		
	a. **Flat Detector System:**		
	(1) The system should have CMOS based Flat Detector for excellent resolution and minimum noise.		
	(2) The size of the detector should be at least 21 x 21 cm or more		
	(3) The pixel size should be 135.0 µm or more		
	(4) The camera should be equipped with high resolution 1.5k*1.5k matrix for better image quality.		
	(5) The system should provide a Last Image Hold Capability that the last image is displayed on the active monitor after the termination of an exposure.		
	(6) The system shall allow the user to change the Image Orientation on the display screen during live exposure or using the last image hold. Those functions include image rotation. left to right and top to bottom image reversals and Image Invert.		
	b. **Digital System & Image Management:**		
	(1) Must be Fully Digital Continuous Imaging Chain of 1.5k*1.5k * 16 bits or better for Acquisition. Processing. Storage, Archiving Documentation.		
	(2) System should be equipped with Physical keyboard and integrated touchpad keyboard for entering patient data and for image annotation etc.		
	(3) The system should have multi patient data base for handling large quantities of image including Dose Management Report. At least 40,000 static Image storage capacity should be available.		
	(4) The system should Automatically select proper imaging parameters. KVp and mA during imaging, but also provide the user to over-ride these settings manually.		
	(5) Real time and Automatic Brightness and Contrast should be provided to optimize displayed image.		
	(6) Touch screen controlled Image display system should be at least minimum 32" UHD/TFT mounted on an articulating arm with at least 5 movements, with 600 cd/m2 of maximum brightness.		
	(7) Annotation. measurement of angles and distances software should be there.		
	(8) Radiation dose report at the end of the study must be available in the system.		
	(9) Disk storage of minimum of 40000 images in at least 1.5K x 1.5K matrix. It should be integrated in the system.		
	(10) C-Arm should be integrated with laser aimer Class IIIa/3R from detector side.		

<table>
<tr><th>Ser no</th><th>Description</th><th>Technical specification</th><th>To be filled up by the Principal/ Manufacturer</th></tr>
<tr><td></td><td colspan="2">c. Image Documentation: The unit should be equipped with latest DICOM ready for networking to the hospital network & any PC and PACS.</td><td></td></tr>
<tr><td></td><td colspan="2">d. The unit should be equipped with latest DICOM ready for networking to the hospital network & any PC and PACS.</td><td></td></tr>
<tr><td>5.</td><td colspan="2"><u>Standard Accessories</u>:</td><td></td></tr>
<tr><td></td><td colspan="2">a. Online UPS for at least 30 minutes back up for the whole system KVA to be mentioned.</td><td></td></tr>
<tr><td></td><td colspan="2">b. Zero Lead Aprons (light weight) (0.5 mm Lead equivalence): 05 Nos.</td><td></td></tr>
<tr><td></td><td colspan="2">c. Thyroid Shield (0.5 mm Lead equivalence): 05 Nos.</td><td></td></tr>
<tr><td></td><td colspan="2">d. Head Shied (0.5 mm Lead equivalence): 05 Nos.</td><td></td></tr>
<tr><td></td><td colspan="2">e. Eye Protection Goggles (0.75 mm Pb equivalence): 05 Nos.</td><td></td></tr>
<tr><td></td><td colspan="2">f. Two pedal Foot Switch for fluoroscopy and acquisition of images</td><td></td></tr>
<tr><td>6.</td><td>Optional accessories (if any):</td><td>To be mentioned</td><td></td></tr>
<tr><td>7.</td><td>Power Supply</td><td>Input voltage 220 to 240 VAC ± 10%, 50 Hz</td><td></td></tr>
<tr><td>8.</td><td colspan="2"><u>Complete BOQ/BOM.</u> All Foreign & Local supplied items to be listed separately for full range of operation of the equipment as per following table:
<table>
<tr><th>Ser</th><th>Name of item</th><th>Qty</th><th>Brand</th><th>Model</th><th>Country of Origin</th><th>Country of Manufacturer</th><th>Remarks</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td><td></td></tr>
<tr><td>9.</td><td colspan="2"><u>Local Training</u></td><td></td></tr>
<tr><td></td><td>a. Operational Training</td><td>02x Operators for 01 week.</td><td></td></tr>
<tr><td></td><td>b. Repair/Maintenance Training</td><td>02x OEM Technician for 01 week.</td><td></td></tr>
<tr><td>10.</td><td>Warranty</td><td>05 (Five) years warranty from the date of issuance inspection note (I/Note)
a. 5 (Five) Years Warranty for main system including X-Ray tube. The successful bidder is to provide 95% uptime during the warrantee period. He should maintain the downtime record and shall get it countersigned regularly from consignee or his representative. In case downtime exceeds 2%.the warrantee will be extended double the excess dawn time. Successful vendor shall ensure regular maintenance and supply of spares of all third-party items during the period of warranty and subsequent CMC period.
(1) The vendor shall be responsible for getting the AERB registration as per the latest guidelines. Installation certificate shall not be issued by the department till the proof of registration is submitted.
(2) The vendor shall be responsible for carrying out mandatory quality assurance check on the equipment every year in consultation with the radiation safety officer. This shall be part of the CMC of the equipment.</td><td></td></tr>
</table>

Ser no	Description	Technical specification	To be filled up by the Principal/ Manufacturer
		b. **C.M.C:** Comprehensive Maintenance charges of all items as per original order including turnkey and third-party items and batteries. must be quoted year-wise for next 5 (Five) years after completion of warranty. The successful bidder to provide 98% uptime during the CMC period and should maintain the downtime record and shall get It countersigned regularly from consignee or his representative In case downtime exceeds 2% the CMC period will be extended double the excess dawn time. CMC charges will be included far price comparison al bids. c. **SERVICE:** Details of the service centers. With their telephone No. to be provided in the technical bid. In the technical bid, certificate from the manufactures giving guarantee that in case authorized agent is changed from the time of purchase uninterrupted service will be provided by the new agency whosoever is now authorized represent the original manufacturer failing which their bids are liable to be rejected.	
11.	After sales service	10 (Ten) years from the date of installation.	
12.	Certificate of quality	FDA/CE/JIS Certificate must be submitted with offer.	
13.	Books and Publication	Following books and publication will be supplied in English along with the stores free of cost (As per requirement of EME Dte).	
		a. Owners/ Operators Manual in English (Book type): 01 x Hard copy original (Book type) for each equipment and 01x CD/DVD (Soft copy) to be provided with the supply of the equipment.	
		b. Workshop/ Repair Manual in English (Book type): (1) 06 x Hard copies original (Book type) and 01x CD/DVD (Soft copy) to be provided with supply of the equipment. (2) Online workshop/repair software to be mentioned. (3) 03 copies (01 x Original and 02 x photocopies) operation and maintenance manual of all components and accessories to be supplied with main equipment.	
		c. 100% Updated Master Spare Parts Catalogue in English (Book type): 06 x Hard copies original (Book type) and 01x CD/DVD (soft copy) to be provided with supply of the equipment.	
		d. Complete and Updated Master Spare Parts Price Catalogue/ list in English (Book Type): 01 x Hard copy original (Book type) and 01x CD/DVD (soft copy) to be provided with the supply of the equipment.	
14.	Other feature/items not listed above but required for full range of operation of the offered equipment to be mentioned and to be supplied with main equipment.		