Equipment Specifications

C-Arm and Portable R/F Procedure Table

VISN1/ VA Boston Healthcare System- Brockton Campus

523-B81014

A. REQUIREMENT OVERVIEW

This document highlights the requirements, technical specifications, and services being requested by VA Boston Healthcare System towards the purchase of a portable Radiographic/Fluoroscopic (R/F) unit, commonly referred to as a C-Arm, and a portable R/F procedure table. The C-Arm will provide R/F imaging in surgical, orthopedic, critical care and emergency care procedures. Contractor shall provide all labor, material, parts, tools, software, project management and equipment necessary to furnish and install a fully functional C-Arm and portable R/F Table at 940 Belmont Street, Brockton, MA, 02301.

Facility	Quantity
VA Boston Healthcare System - Brockton	1

B. TECHNICAL REQUIREMENTS

1. Mobile R/F Unit physical specifications

a. Minimum detector size [cm]	21
b. Minimum central resolution [lp/mm]	3.5
c. Minimum range of motion [deg]	360° lateral, 145° orbital
d. Minimum c-arm depth [in]	33
e. Minimum generator output power [kW]	15
f. Minimum monitor size (if dual) [in]	32 display monitor, 10.4 tech monitor
g. Maximum system dimensions [cm]	300 x 100 x 200
h. Maximum system weight [kg]	300
i. Minimum display monitor resolution	3840 x 2160
j. Minimum tech monitor resolution	800 x 600
k. Range of fluoroscopy mode [kVp]	40-120

2. Additional specifications

☒	a. Flat detector technology
☒	b. Flat surface beneath detector to allow for efficient table-top positioning
☒	c. Image magnification with a minimum of 3 settings
☒	d. Consistent field of view during rotation

☒	e. Low profile tube housing – Vendors are encouraged to propose the smallest housing available.
☒	f. Tube head controls for use by clinician
☒	g. Foot pedal
☒	h. Flat panel monitor(s) workstation on a cart with either dual or single high-resolution monitors
☒	i. Reference monitor
☒	j. Integrated keyboard on workstation allowing back-up functionality to touch screen control system
☒	k. Motion and metal detection
☒	l. Measurement software
☒	m. Automatic video playback
☒	n. Integrated dose reporting, specifically RDSR
☒	o. X-ray dose summary
☒	p. User-configurable threshold dose warning
☒	q. Digital image rotation, reversal, and image invert
☒	r. Selectable mode settings for high-level pulse and low dose
☒	s. Easy positioning of the c-arm – ability to “rainbow” (over-scan) 180° without moving away from the patient
☒	t. DVD/CD or USB drive
☒	u. UPS on board
☒	v. Audible/visual x-ray on warning
☒	w. Automatically seeking subject anatomy within imaging field
☒	x. Automatically adjusting image brightness and contrast when metal is introduced into field
☒	y. Automatic digital image rotation, to include Image rotation Live and last image hold rotated in real-time Image reversal (left to right) Image invert (top to bottom) 1° rotation increments On screen orientation indicator

3. Generator specifications

☒	a. High-frequency
☒	b. Automatic dose rate control
☒	c. Ability to power from a standard wall outlet
☒	d. Pulse and continuous fluoroscopy modes

4. Advanced applications

☒	a. Digital Subtraction Angiography (DSA)
☒	b. Pulsed cine bolus chase imaging with single contrast injection

☒	c. Vascular, to include Increased frame rate from base model 30fps or greater Real-time digital subtraction Roadmapping Increased image storage (1000 images or greater) Bolus tracking Vessel measurement tools and calculations Catheter/guidewire visualization enhancement
☒	d. Orthopedic, to include Metallic edge suppression Bone visualization optimization (soft tissue suppression) On-screen measurement tools (distance, angle, etc.) Image comparison tools (side-by-side display, image overlay)
☒	e. Imaging with General-Purpose Dynamic Range Management (GDRM)
☒	f. Peak opacification
☒	g. Up to 8 fps Cine
☒	h. Recording/playback rate ability
☒	i. Frame-by-frame review
☒	j. Automatic image playback
☒	k. 1.5k x 1.5k x 16 bit image processing or greater
☒	l. Pre-set imaging profiles, to include 9900 General Orthopedic Spine

5. Security/Connectivity requirements

☒	a. OEM-supported operating system
☒	b. DICOM 3.0 print, store, commit, and modality worklist
☒	c. HL7 integration (HIS/RIS)
☒	d. Wireless connectivity to VA network – Compatible with 802.11b/g/n and FIPS 140-2 compliant
☒	e. Encrypted hard drive
☒	f. PACS compatibility – Carestream

6. Portable R/F Table specifications

☒	Minimum tabletop dimensions [in]	20 x 72
☒	Maximum table weight [kg]	200
☒	Patient weight capacity on table [lbs]	400
☒	Motorized elevation at least 80 – 100 cm	
☒	Trendelenburg tilt at least ±15°	
☒	Lateral roll at least ±20°	

☒	Locking swivel casters
☒	Battery back-up operation
☒	Hand control

7. Added Value

Specifications listed below are not required, but preferred. Vendors who do not include the below specifications in the submitted offer will not be docked or excluded from consideration. Specifications listed below will be evaluated based on added value.

☒	a. CMOS flat detector technology
☒	b. Touchscreen monitor with 180° rotation, up/down and left/right tilt, and up/down motion
☒	c. Continuous fluoroscopy
☒	d. Capability of powering up the c-arm and the workstation separately
☒	e. Wireless foot pedal
☒	f. One-year warranty

C. TRAINING REQUIREMENTS

Description	No. of Personnel
1. On-site clinical applications training during go-live for technologists. This training shall cover, in detail, all the software packages.	21
2. Biomedical technical training package (to include tuition)	1

Biomedical technician training shall include any prerequisites required prior to the training and shall be equivalent to the training received by OEM field service representatives. Technicians shall be given all service manuals, schematics, diagrams, diagnostic software, other special tools, and keys equivalent to what OEM field service representatives have available to diagnose, troubleshoot, repair, and maintain the equipment.

Technologists who complete the clinical applications training shall receive continuing education credits (CMEs).

Off-site training will not be purchased at the time of award. Vendors must demonstrate that they can provide any required off-site training listed above, therefore off-site training should be quoted as an optional item. Travel for VA employees is not authorized under the HTME contracts. In no case should any training include expenses for travel or travel for VA personnel at no cost.

D. SERVICE REQUIREMENTS

1. VPN/Remote Access – The vendor shall provide, at no additional cost, any and all equipment service programs, such as remote diagnostics, during the warranty period. The vendor shall provide post-warranty remote diagnostic service program as an “Add Option” with the offer. The system shall provide

vendor remote diagnostics via VPN. The vendor shall either utilize the VA national site-to-site VPN or work with the Office of Cyber and Information Security and the VAMC Information Systems Security Officer to establish a client-based VPN.

2. Service and Operator Manuals – The vendor shall provide the following documentation for the proposed systems:
    a. Two (2) copies of operator instruction manuals (one (1) electronic and one (1) physical copy)
    b. Two (2) copies of a system manager (super user) manual outlining back-up procedures, managing privilege group limits, routine tasks, etc.
3. Minimum Warranty – The system and accessories shall be covered under the manufacturer's warranty and shall include all parts and labor for one year following acceptance by the VAMC. This warranty must include PMs as required by the manufacturer. The manufacturer's factory-trained field service representatives shall perform installation and maintenance during the warranty period.

Vendors are encouraged to include any offerings for service, warranty, and training that may exceed the requirements with their proposals. Vendors who do not include any added value offerings for service, warranty, and training will not be docked or excluded from consideration. However, any such offerings will be evaluated based on added value.

E. INFORMATION AND OTHER DOCUMENTATION REQUIRED

1. Product brochures
2. Technical specification sheets, to include dimensions and weight of the system
3. DICOM Conformance Statement
4. IHE integration statement
5. FIPS 140-2 certification
6. Completed pre-procurement assessment form (6550)
7. Completed MDS2 form
8. Detailed information about the curriculum and length of the biomedical technical training
9. Details on any off-site training offered for technologists
10. Information about your company's support structure during the warranty period
    a. Describe on-line or telephonic applications support and availability
    b. Provide a listing of field service engineer locations and availability
    c. Provide a listing of part depots
11. Information about your company's support options following the warranty period, including a description of on-line or telephonic applications support and availability
12. Version/platform long-range plan
13. Two (2) copies of the product service manual (1 hard copy and 1 digital copy)
14. Information on any FDA safety recalls associated with the proposed equipment

F. TRADE-IN

☒	a. VA has no trade-in units to offer.