

**Functional Requirements for Digital Mobile C-arm**  
**Fargo VA Health Care System (437)**  
**618-B79054**

VISN 23 is requesting replacement C-arm technology for all sites. This equipment will be primarily used for orthopedic and vascular procedures. We are not looking for robotic, motorized, and/or reconstruction functionality with this equipment nor are we looking for mini c-arm for hand procedures, etc.

**Technical Requirements**

1. Flat detector technology (CMOS preferred but not required)
  - Detector size (minimum 30cm x 30cm)
2. Image magnification available (3 settings minimum)
3. Consistent field of view during rotation
4. Low profile tube housing (smaller profile is preferred)
5. Flat panel monitor(s) workstation
  - On a cart with either dual or single monitors
  - If Dual
    - Minimum 18" high resolution monitors
    - Touchscreen preferred but not required
    - Rotation 180% preferred but not required
    - Tilt – up/down, left/right (preferred but not required)
    - Ability to move the monitor up and down (preferred but not required)
  - If Single
    - Minimum 30" high resolution monitor
    - Touchscreen preferred but not required
    - Rotation 180% preferred but not required
    - Tilt – up/down, left/right (preferred but not required)
    - Ability to move the monitor up and down (preferred but not required)
6. Reference monitor
7. Integrated keyboard on workstation allowing back up functionality to touch screen control system.
8. Minimum 15 kW output power
9. Digital Subtraction Angiography (DSA)
10. Pulsed cine Bolus chase and roadmap capability for vascular procedures
11. Measurement software
12. Automatic video playback
13. HL7 integration (HIS/RIS)
14. DICOM print, store, commit, and modality worklist
15. Integrated dose reporting specifically RDSR
16. Digital image rotation, reversal and image invert
17. Selectable mode settings for high level pulse, and low dose
18. Continuous fluoroscopy (preferred but not required)
19. Capability of powering up the C-arm and the workstation separately is preferred
20. UPS on board (preferred but not required)
21. Ease of maneuverability (Ergonomics)
  - Easy positioning of the C-arm
    - Ability to "rainbow" (overscan) 180 degrees without moving away from the patient
  - Easy positioning of the workstation
  - Easy positioning of the monitor(s)
    - Able to move monitors for viewing at different angles
    - Able to view monitors from multiple locations in the room
  - Size of equipment (smaller unit is preferred)
  - Weight of unit (lighter unit is preferred)

22. Wireless capability (preferred but not required)
23. Wireless foot pedal (preferred but not required)
24. Latest supported operating systems (e.g. Linux, Windows 7 or greater, etc.)

### **Advanced Applications**

1. Digital Subtraction Angiography (DSA)
2. Pulsed cine Bolus chase imaging with single contrast injection
3. Roadmap technology for vascular imaging

### **Training**

1. On-site
  - a. Clinical applications **during go-live** - minimum of 2 days (16 hours total)
  - b. Training should be for both technologists
  - c. It is expected that the applications training will cover in detail all the software packages
2. Same clinical applications trainer for each site, who must be cleared through VISN 23 workgroup. It is expected that the same clinical applications trainer be available for all VISN 23 sites.
3. Follow-up
  - a. Applications training to be provided after technologists have hands-on experience with the system – between **5-6 months** after go-live for a minimum of 1 day (8 hours total)
4. Biomedical Technical Training Package for 1 technician – to include tuition and travel (lodging, rental car, airfare/mileage and per diem). Include training for all courses including any prerequisites and is equivalent to what your OEM field service representatives receives. All service manuals, schematics, diagrams, diagnostic software, other special tools and hardware keys equivalent to what their OEM field service reps have available to diagnose, troubleshoot, repair and maintain the equipment.

### **Information and other documentation vendors are to provide:**

1. Provide brochures
2. Provide technical specification sheets
3. Provide the weight of the C-arm unit (in lbs)
4. Provide the weight of the workstation (in lbs)
5. Provide version/platform long-range plan.
6. Provide DICOM conformance statement.
7. Provide FIPS 140-2 certification (if wireless capable)
8. Provide completed pre-procurement assessment form (6550).
9. Provide detail information about the curriculum and length of the Biomedical Technical Training.
10. Provide details on any off-site training offered for technologists
11. Provide information about your companies 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. Listing of part depots
12. Provide information about your company's support options following the warranty period
  - a. Describe on-line or telephonic applications support and availability
13. Provide 2 copies of the products service manual (1 hard copy and 1 digital copy).
14. Provide references for the clinical applications trainer that will be assigned to VISN 23.

### **Trade-in information:**

Option 1 - VA will retain any hard drives containing electronic personal health information (ePHI)

EE: EE 19102

Manufacturer: GE OEC

Model: 9900

S/N: E2-0877

Installation date: 5/12/2009