

Equipment Specifications

Digital Radiography and Fluoroscopy

[20/Mann-Grandstaff VA]

[668-B80015]

A. REQUIREMENT OVERVIEW

The requirement for this procurement is for a single general-purpose R/F room for the Mann-Grandstaff VA (668) in Spokane, WA. The intended applications include but are not limited to general radiography; upper GI; lower GI; esophagrams; barium swallows; arthrograms; joint injections; nephrostomy tubes; colostomy tubes; port placement; and weight bearing knees, feet, hips.

| Facility | Quantity |
|--------------------------|----------|
| Mann-Grandstaff VA (668) | 1 |

B. TECHNICAL REQUIREMENTS

1. Unit physical specifications

| | |
|---|--|
| a. Minimum wall detector size [in x in] | 14" x 17" |
| b. Minimum table detector size [in x in] | 17" x 17" |
| c. Minimum detector resolution [lp/mm] | 3.4 |
| d. Maximum pixel size [μm] | 148 |
| e. Maximum detector weight (with battery) [lbs] | 6.6 lbs |
| f. Height range for wall bucky [in] | 26"-68.1" |
| g. Maximum patient weight [lbs] | Table 660 lbs |
| h. Minimum table width [cm] | 80 |
| i. Minimum table tilt [deg] | +90°/-45° |
| j. Minimum generator power [kW] | 80 |
| k. Minimum generator phases | three |
| l. Radiographic kVp range [kVp] | 40 kV to 150 kV |
| m. Radiographic mA range [mA @ kVp] | 530 mA at 150 kV |
| n. Fluoroscopy kVp range [kVp] | 110 kV/23 mA |
| o. Minimum pulse rate [frames/sec] | 30,15,10,7.5, or 3 p/s 0.5,1,2,4 or 8 f/s |
| p. Minimum acquisition matrix size | 12-bit Fluoro/14 bit Digital radiology |
| q. Minimum acquisition bit depth | 16 bits |
| r. Minimum spatial resolution [lp/mm] | DQE 66% at 0.05 lp/mm to 17% at Nquist |
| s. Minimum SID range [in] | 45.3 |



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|--|--|
| t. Heat unit x-ray tubes [kHU] | Anode heat storage 783,000 HU |
| u. Minimum heat dissipation rate [kHU/min] | 162,000 HU/min. |
| v. Minimum control room monitor size [in] | 19" |
| w. Minimum in-room monitor size [in] | 19" |
| x. Minimum control room computer hard drive memory [GB] | 4 GB |
| y. Minimum imaging tower expanded tabletop clearance[in] | 45" to 59" |
| z. Minimum Imaging Tower field of view [in] | Fullformat 42cmX42.6cm, Zoom1 30cmX30cm, Zoom2 22cmX22cm, Zoom 3 15cmX15cm |
| aa. Maximum system dimensions [cm] | 210 cm to 250 cm |
| bb. Maximum system weight [kg] | 1320 kg system |
| cc. Other physical specifications | Longitudinal table travel 62.9" |

2. Additional specifications

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|---|--|
| Generator | |
| <input checked="" type="checkbox"/> | a. High-frequency generator with automatic dose rate control |
| <input checked="" type="checkbox"/> | b. Continuous 30 p/s and pulsed fluoroscopy ma modes |
| Fluoroscopic Tube | |
| <input checked="" type="checkbox"/> | c. Configuration <div> <input checked="" type="radio"/> Overhead tube <input type="radio"/> Floor-mounted </div> |
| <input checked="" type="checkbox"/> | d. Pulsed/grid fluoroscopic tube |
| <input checked="" type="checkbox"/> | e. Selectable filtration |
| <input checked="" type="checkbox"/> | f. Dual focal spots (please specify) 0.6 and 1.0 |
| <input checked="" type="checkbox"/> | g. Collimation – fully adjustable manual and automatic exposure control with visible light field display. |
| <input checked="" type="checkbox"/> | h. Radiation free collimation |
| Fluoroscopic spot device/Imaging tower | |
| <input checked="" type="checkbox"/> | i. Flat panel detector technology |
| <input checked="" type="checkbox"/> | j. Automated image capture and save, to include last image hold |
| <input checked="" type="checkbox"/> | k. Variable speed power assist controlled in all directions |
| <input checked="" type="checkbox"/> | l. Footswitch and tower controls, to provide the following: Control of both fluoroscopy and spot shots Automatic shut-off when footswitch or tower control is released |
| <input checked="" type="checkbox"/> | m. Removable lead curtains with counter weights for when curtains are not in use |
| <input checked="" type="checkbox"/> | n. Tabletop travel controls |
| <input checked="" type="checkbox"/> | o. Collimation control |



| | | |
|---|-----|--|
| Radiographic/overhead tube crane system | | |
| <input checked="" type="checkbox"/> | p. | Patient alignment system (laser alignment/positioning lights) |
| <input checked="" type="checkbox"/> | q. | Table and upright auto tracking package |
| <input checked="" type="checkbox"/> | r. | Pre-programmed exposure settings located on tube or in control room |
| <input checked="" type="checkbox"/> | s. | Ability to change between table top, upright bucky, and table bucky from tube head |
| <input checked="" type="checkbox"/> | t. | Ability to lower overhead tube to touch the floor when used with the wall stand |
| <input checked="" type="checkbox"/> | u. | Automatic tube crane, protocol-based movement |
| <input checked="" type="checkbox"/> | v. | In room protocol adjustment via tube head or other in-room mounted system |
| Control room fluoroscopic/radiographic control panel | | |
| <input checked="" type="checkbox"/> | w. | Auto HIS/RIS refresh package |
| <input checked="" type="checkbox"/> | x. | Quality control tracking package |
| <input checked="" type="checkbox"/> | y. | Bar code reader to scan additional detectors (sharing) |
| <input checked="" type="checkbox"/> | z. | UPS for x-ray control/image memory |
| <input checked="" type="checkbox"/> | aa. | Ability to send images directly from the control panel (no separate workstation required) |
| <input checked="" type="checkbox"/> | bb. | Ability to capture live video |
| <input checked="" type="checkbox"/> | cc. | DVD recorder-option |
| Wall stand/fixed wall detector | | |
| <input checked="" type="checkbox"/> | dd. | Ability to lower center of imaging plate to touch the floor |
| <input checked="" type="checkbox"/> | ee. | Ability to tilt the imaging surface at least 90° and -20° |
| <input checked="" type="checkbox"/> | ff. | Automated movement for long axis stitching |
| <input checked="" type="checkbox"/> | gg. | Auto tracking of the tube and detector during vertical adjustment at the wall stand and/or tube. |
| <input checked="" type="checkbox"/> | hh. | Tilt-able detector holder with inherent grid (-20 degrees to 90 degrees) |
| <input checked="" type="checkbox"/> | ii. | Height minimum – low enough to complete standing knee exams while patient is standing on the floor |
| <input checked="" type="checkbox"/> | jj. | Height maximum – high enough to complete AP C-spine exams while patient is standing on the floor |
| In-room monitor | | |
| <input checked="" type="checkbox"/> | kk. | LCD in-room monitor <div> <input checked="" type="radio"/> Ceiling-mounted <input type="radio"/> Pedestal-mounted </div> |
| <input checked="" type="checkbox"/> | ll. | In-room remote control to orientate |
| <input checked="" type="checkbox"/> | mm. | High contrast black and white |
| <input checked="" type="checkbox"/> | nn. | Anti-glare display |
| Removable table detector requirements | | |
| <input checked="" type="checkbox"/> | oo. | Wireless detector (not tethered to the system/table)14"x17" |
| <input checked="" type="checkbox"/> | pp. | Detector charger in bucky/holder |
| <input checked="" type="checkbox"/> | qq. | Additional battery |
| <input checked="" type="checkbox"/> | rr. | Charging station (if required) |



Table requirements

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|-------------------------------------|---|
| <input checked="" type="checkbox"/> | ss. Ability to tilt 90 degrees in both directions/full tilt option |
| <input checked="" type="checkbox"/> | tt. Full articulation |
| <input checked="" type="checkbox"/> | uu. Auto-centering option to exact middle while the table is in horizontal or vertical position |
| <input checked="" type="checkbox"/> | vv. Table movement controls <div> <input type="radio"/> Tableside <input checked="" type="radio"/> Trolley </div> |
| <input checked="" type="checkbox"/> | ww. Removable/adjustable patient handgrips |
| <input checked="" type="checkbox"/> | xx. Removable/adjustable footrest |
| <input checked="" type="checkbox"/> | yy. Removable/adjustable shoulder rests |
| <input checked="" type="checkbox"/> | zz. Removable/adjustable stirrups- option |
| <input checked="" type="checkbox"/> | aaa. Bariatric table |
| <input checked="" type="checkbox"/> | bbb. Remote or manual table top movements |
| <input checked="" type="checkbox"/> | ccc. Motor driven table top movement in the X and Y axis at stated maximum weight capacity. |
| <input checked="" type="checkbox"/> | ddd. Auto tracking of bucky / tube for longitudinal travel |
| <input checked="" type="checkbox"/> | eee. Ability to lower tabletop height to at least 18.9" from the floor in the horizontal position at stated maximum weight capacity. |
| <input checked="" type="checkbox"/> | fff. Selectable automatic stop in horizontal position 0 ° |
| <input checked="" type="checkbox"/> | ggg. Longitudinal table and tube travel |

3. Software Requirements

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| <input checked="" type="checkbox"/> | a. Monitoring of Dosage- The system must be able to supply a technology that allows for monitoring and tracking of radiation dose provided to a patient; DICOM structured reporting is preferred. DAP accuracy must be 99% reproducible with <2% deviation. |
| <input checked="" type="checkbox"/> | b. Bone suppression |
| <input checked="" type="checkbox"/> | c. Repeat rate – ability to track repeat/retake data to include such items as technologist (required unique identifier), reason for repeat, patient dose, exam type, etc. The data should be exportable to Excel or other databases for tracking, trending, and combining with data from other imaging sources within the facility. |
| <input checked="" type="checkbox"/> | d. Rapid image display, < 5 seconds preferred. |
| <input checked="" type="checkbox"/> | e. Stitching – ability to stitch multiple long axis images with options for automated and manual process. Using tube tilt with the upright wall bucky and the table. |
| <input checked="" type="checkbox"/> | f. Ability to apply multiple image processing algorithms both pre and post-acquisition to allow for soft tissue and/or bone enhancement. |
| <input checked="" type="checkbox"/> | g. Dose Reduction- The system must have systems in place to facilitate regular protocol optimization and reduced radiation dose to the patient. |



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| <input checked="" type="checkbox"/> | h. Fluoroscopy Loop – Ability to record and store dynamic fluoroscopy sequences after the fluoroscopy has been completed. Storage capacity may be variable according to pulse per second settings (please specify). Please include storage and display options for recorded data review and archive. |
| <input checked="" type="checkbox"/> | i. Automatic movement to position as defined in the programs by pressing a single button. |
| <input checked="" type="checkbox"/> | j. Dose free collimation with the last image hold (side to side and top to bottom of the image) |

4. Security/Connectivity Requirements

| | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | a. OEM-supported operating system |
| <input checked="" type="checkbox"/> | b. DICOM 3.0 print, store, commit, and modality worklist |
| <input checked="" type="checkbox"/> | c. HL7 integration (HIS/RIS) |
| <input checked="" type="checkbox"/> | d. Wireless connectivity to VA network – compatible with 802.11b/g/n and FIPS 140-2 compliant |
| <input checked="" type="checkbox"/> | e. Encrypted hard drive |
| <input checked="" type="checkbox"/> | f. PACS compatibility – [Agfa, EPIC, Carestream and the majority of all PACS] |
| <input checked="" type="checkbox"/> | g. (NIST)FIPS document |

5. 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.

| | |
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| <input checked="" type="checkbox"/> | a. Oblique projections -45°/+45° |
|-------------------------------------|----------------------------------|

C. TRAINING REQUIREMENTS

| Description | No. of Personnel |
|--|------------------|
| 1. On-site clinical applications training for technologists during go-live | 6+ |
| 2. Off-site clinical applications training for technologists (to include tuition) | n/a |
| 3. On-site follow-up clinical applications training after technologists have hands-on experience with the system | 6+ |
| 4. Biomedical technician training package (to include tuition) | 2 |

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).

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. OTHER INFORMATION/DOCUMENTATION REQUESTED

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 (include third party coverage)
 - 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)



F. TRADE-IN

The VA will retain any hard drives containing electronic personal health information (ePHI). The following equipment is available for trade-in. Please reflect any credits provided for trade-in equipment in the proposal.

| | |
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| Station | 668 |
| Manufacturer | GE |
| Model | Precision RXI |
| EE/Asset Number | 24643 |
| Serial Number | 776 |

acquisition date 01/06/2011

