



TECHNICAL SPECIFICATIONS FOR STATIONARY RADIOGRAPHIC X-RAY SYSTEM

Scope

This includes the supply, delivery, installation and commissioning of general radiography x-ray system.

Application/Use

Radiographic procedures

Standard Composition

- X-ray Generator and Tube
- X-ray Tube Support Assembly
- X-ray Table
- Vertical Image Receptor Stand
- Control Console
- Automatic Exposure Control (AEC) Device (Optional)
- Image Receptor
- Image Display Device
- Accessories
- Power Requirements
- Other Requirements
- Other Terms and Conditions

Technical Specifications

X-ray Generator and Tube	Generator	High frequency inverter system
	Generator settings	Kilovoltage: Minimum Setting: 40 kV Maximum Setting: ≥ 125 kV
		Maximum tube current: <input type="checkbox"/> 100 mA <input type="checkbox"/> If higher please specify: _____ mA
	Anode	Rotating
	Nominal focal spot size	Small focus: ≤ 0.8 mm Large focus: > 0.8 but ≤ 1.5 mm
	Total filtration	≥ 2.5 mm Al equivalent
	Permanent filtration	≥ 1.5 mm Al equivalent
	Collimation system	<input type="checkbox"/> Automatically controlled collimator <input type="checkbox"/> Manually controlled collimator
With field lamp and automatic shut-off timer		
With crosshair centering and pre-indication of field sizes at certain source to image distance		

X-ray Tube Support Assembly	Mounting	<input type="checkbox"/> Floor <input type="checkbox"/> Ceiling <input type="checkbox"/> X-ray table <input type="checkbox"/> Floor to Ceiling <input type="checkbox"/> Floor to Wall	
	Locking mechanism	Electromagnetic/manual	
	Tube arm movement	<input type="checkbox"/> Lateral <input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical	
	Swiveling out tube assembly (Optional)	At least $\pm 90^\circ$	
	Tube angulations	At least $\pm 90^\circ$	
X-ray Table	Stationary	<input type="checkbox"/> Basic <input type="checkbox"/> 4 or 6-way floating	
	Grid	Reciprocating	
		Ratio:	<input type="checkbox"/> 12:1 <input type="checkbox"/> 10:1 <input type="checkbox"/> 8:1
		Grid frequency: At least 70 lines/inch (27 lines/cm) Focal distance: At least 35 inches (90 cm)	
	Accessories (Optional)	<input type="checkbox"/> Image receptor holder for cross-table exposure Immobilizing devices: <input type="checkbox"/> Head clamp <input type="checkbox"/> Abdominal/head straps	
Vertical Image Receptor Stand	Grid	Reciprocating	
		<input type="checkbox"/> Parallel <input type="checkbox"/> Focused Focal distance: At least 40 inches (100 cm)	
		Ratio:	<input type="checkbox"/> 12:1 <input type="checkbox"/> 10:1 <input type="checkbox"/> 8:1
		Grid frequency: At least 70 lines/inch (27 lines/cm)	
	Movement	<input type="checkbox"/> Vertical <input type="checkbox"/> Tilting	
Control Console	Overload protection indicator	Visual/audible	
	Technique selector	<input type="checkbox"/> Kilovoltage (kV) <input type="checkbox"/> Milliamperage (mA) <input type="checkbox"/> Time (sec or msec and/or pulse) / milliamperere second (mAs) <input type="checkbox"/> Anatomical programming function	
	Display	<input type="checkbox"/> Kilovoltage (kV) <input type="checkbox"/> Milliamperage (mA) <input type="checkbox"/> Time (sec or msec and/or pulse) / milliamperere second (mAs) <input type="checkbox"/> Anatomical programming function	
	Exposure switch	Dead-man type hand switch with cable (at least 2 m) and/or console push button	
	Ready and x-ray exposure indicator	Audible and/or visible	
	Automatic Exposure	Location	<input type="checkbox"/> Table <input type="checkbox"/> Vertical Image Receptor Stand

Control (AEC) Device (Optional)	Exposure steps	At least 5 exposure steps
Image Receptor	Type	<input type="checkbox"/> Film- Screen <input type="checkbox"/> Photostimulable Phosphor (for Computed Radiography System) <input type="checkbox"/> Direct Digital Radiography <ul style="list-style-type: none"> <input type="checkbox"/> Flat panel detector <input type="checkbox"/> Charge-coupled device (CCD)
Image Display Device	Type	<input type="checkbox"/> Film viewer <input type="checkbox"/> Monitor
	Film viewer	Number of banks: _____ Size: 14" x 17" each bank Luminance: 1500 cd/m ² With film clips
	Monitor	At least 1 unit medical grade LCD/LED type monitors
	Radiation protection device	1 lead rubber apron of at least 0.25 mm Pb equivalence 1 lead rubber thyroid shield of at least 0.25 mm Pb equivalence 1 pair of lead rubber gloves of at least 0.25 mm Pb equivalence 1 set of lead rubber gonadal shields with minimum of 0.5 mm Pb equivalence <ul style="list-style-type: none"> • contact shields for male adult, female adult, infant male and infant female • upright gonadal shield for chest x-ray examinations
Accessories	Viewing window	At least 21 cm x 26 cm (8" x 10") with 1.5 mm Pb equivalence
	Others	1 pc measuring caliper, sliding, double sided, scaled in cm, with blunt edges and parallel arm Hanger/s for lead apron/s
Power Requirements		1 phase/3 phase, 220-240VAC, 60Hz as applicable to the power supply of the end-user
		Supplier to provide appropriate transformer when applicable
Other Requirements	Air-conditioning units	At least 2.0 hp, 220 VAC, 60 Hz
	Automatic voltage regulator	1 unit, appropriate with the power rating of the x-ray machine and with a voltage regulation range of 150-300 V
	Grounding system	dedicated grounding system for the machine shall be provided by the bidder
	Documents	Two sets of the following: <ul style="list-style-type: none"> • operation and instruction manuals • service and installation manuals • wiring and schematic diagrams • x-ray tube data specifications • parts list

Other Terms and Conditions

- Three (3) years warranty for parts and service after passing the acceptance testing of the Center for Device Regulation, Radiation Health, and Research (CDRRHR) of the Food and Drug Administration (FDA) – Department of Health (DOH) as provided in the DOH AO No. 21, s. 1996 dated 4 June 1996.
- Must comply with the applicable requirements under the DOH Administrative Order (A.O.) No. 35, s. 1994.
- The transportation expenses and per diem of the CDRRHR-FDA Medical Physics Team shall be shouldered by the bidder.
- Bid offer is in Philippine peso to include taxes and duties; transportation to site, delivery, installation and testing expenses on site (hospital) by the bidder.
- Certification from the manufacturer
 - that the bidder has the capability for corrective and preventive maintenance of the unit.
 - that the bidder/supplier has the engineer/s trained and capable for corrective and preventive maintenance for the model bid. Service engineer should be presently employed by the bidder/supplier or authorized by the manufacturer.
 - guaranteeing delivery of equipment and all accessories within the time period set by the Bids and Awards Committee (BAC).
 - guaranteeing the availability of all spare parts for the next ten (10) years duly authenticated by the Philippine Embassy in the country of origin.
 - that the equipment is a brand new unit and not a discontinued model.
 - that the terms and conditions stated in the contract shall be honored by the manufacturer in the event that a change of exclusive distributorship will occur during the duration of the said contract.
- Supplier's engineer shall perform preventive maintenance on the machine during the warranty period of at least quarterly.
- The bidder must provide certification type of training on the applications/operations, and basic maintenance for users and maintenance personnel of the hospital.
- Certificate of exclusive distributorship from the unit manufacturer mentioning the name of the Philippine representative.
- Certification from the bidder of 95% uptime guarantee for the equipment offered within the warranty period. Accumulated downtime in excess of 5% shall be added to the warranty period.
- The bidder must submit the original brochure with technical specifications in English language.
- The machine should conform to the International Electrotechnical Commission (IEC) standard or its equivalent national standard. The bidder must provide Certificate of Declaration of Conformity.
- Inventory of spare parts for the unit/model offered duly signed by the manufacturer.
- Certification from the Foreign Ministry of Health that the company can sell the product/model in that country of origin.
- The bidder shall specify post warranty comprehensive preventive maintenance costs including list and price of major spare parts for the next three years after warranty.

Note: This technical specifications replaces the previous technical specifications for stationary radiographic x-ray system. This constitutes revisions done by CDRRHR technical working group which was approved on June 16, 2014.