

RAJASTHAN MEDICAL SERVICES CORPORATION LTD.

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No. F-8() RMSC/EPM/SM-3/NIB-530/ 2020-21/8325

Dated: 01/09/21

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CLARIFICATION/CORRIGENDUM/ADDENDUM

Subject: Amended Technical Specification and revised bid schedule of item RADIOLOGY HIGH FREQUENCY X-RAY MACHINE (100 mA, 300 mA, 500 mA and 100mA MOBILE) under No No. F-8() RMSC/EPM/M-7/NIB-530/ 2020-21/119 date: 15.10.2020.

Amended Technical Specification:-

Revised Technical Specifications of Radiology High frequency X ray Machine (100 mA)
High frequency X-Ray machine suitable for general radiography.
X-RAY GENERATOR:
• High Frequency generator of 50 KHz or more.
• Radiographic KV: 40 to 100KV or more.
• Output power: 6.0 KW
• mAs range: 100 mA or more.
• Exposure Time (Rad) 7ms to 7 sec.
CONTROL:
• Two point selection technique i.e. KV and mAs.
• KV Increase & Decrease Switches.
• mAs Increase & Decrease Switches
• Machine ON/OFF Switch.
• Collimator Lamp 'ON' Switch -on collimator side and control board.
• Standby & Exposure Switch.
• Self diagnostic Programme with indicators for:-
• Earth fault Error
• KV Error/ Inverter error
• Filament Error
• Tube head Thermal Error
• Stand by (Ready) & X-Ray On Indicator.
• Incoming Voltage Indicator. There should be provision for the machine to work from 195Volts Input supply to 265V input supply.
• Anatomical Programming Radiography (i.e. APR) should be provided in which KV and mAs are automatically selected depending upon the physique of the patient and part of the body to be X- Rayed.
• Anatomical Programming of minimum 200 programmes should be provided.
• There should be a provision that the control should get off, if no key is pressed for 10 Min.
• There should be inbuilt delay between the exposures to protect x-ray tube from over loading.
• A Hand Switch with Dual action for exposure Release with Retractable Cord is provided for Radiation Protection to the Operator.
X-RAY TUBE:
• One no. Dual focus Rotating Anode X-Ray tube thermally protected.

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<ul style="list-style-type: none"> • Anode heat storage capacity of tube should be 100 KHU or more. • One Pair of 8 meter H.V. Cable. • One No. Collimator with auto shut off facility should be provided. 	
HV TANK:	
<ul style="list-style-type: none"> • A very compact H.V. Tank filled with high dielectric transformer oil or Monoblock HT tank should be provided. The H.V. Tank should contain H.V. transformer, Filament Transformers, H.V. Rectifiers & H.V. Cable receptacles. 	
STAND:	
<ul style="list-style-type: none"> • Stand should be Floor to ceiling /ceiling free/wall supported stand with counter balanced tube head (rotatable ± 180 degree) 360 degree rotatable; mounted on floor ceiling /ceiling free/wall supported stand free rails for convenient movements. • Company should provide chest stand with machine. 	
HORIZONTAL TABLE:	
<ul style="list-style-type: none"> • The Table should consist of motorized reciprocating bucky with Imported Grid of size 17¼" x 18 ¾" & of Ratio 8:1 - 85 lines/inch. • The Bucky should cover the entire length of the table and should be locked at any desired position by an Electromagnetic lock. • The tabletop should be made of low radiation absorption, waterproof material. • Table Accessories like stainless steel cassette tray, Compression band should be provided. • Bucky should accept cassette upto 14" X 17" 	
POWER SUPPLY:	
<ul style="list-style-type: none"> • 230V, AC, 50Hz. 15 Amps with line regulation of $\pm 15\%$. Line resistance < 0.4 ohms 	
ACCESSORIES:	
Following accessories should be supplied with the machine at the time of installation	
k) Lead Apron 0.5mm Pb equivalent	1No.
l) Lead Barrier 1.5mm Pb equivalent with lead viewing window	1 No.
m) Lead divider 14" X 17" (inch)	2 No.
n) Lead goggles	2 No.
o) Gonadal Shields	2 No.
OTHER REQUIREMENTS:	
1. The quoted model should be AERB approved. Relevant documents shall submit along with technical bid.	
2. The manufacturer should have ISO 9001:2015 and ISO 13485:2016. Valid documentation should be submitted in technical bid	
3. The unit should be approved by AERB. (valid documentation should be submitted in technical bid).	
4. The company should submit technical compliance sheet as per technical specifications mentioning the make & model of quoted item in the Technical bid .	
5. The complaint of this equipment shall be attended within 72 hrs.	
6. The Company should provided QA & QC test report at the time of Installation & in every two years during guarantee period.	
7. Guarantee: Three years on complete unit from the date of the	

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installation.
8. CMC: CMC may be given for seven year (on yearly basis) after guarantee period of three years. CMC will be given @ 4% (of net rate exclusive of GST as applicable etc.) plus service tax (as applicable) and yearly escalation of 5 % on last year's CMC price. The rates of CMC may be awarded for seven years after guarantee.
9. Installation will be done by supplier free of cost.
10. The Company should submit original catalogue and data sheet (signed & stamped) of quoted item at the time of bid submission. Any declaration/ undertaking in this regard shall not be considered.
11. The Firm shall provide guideline and support to consignee, required to register online official Website eLORA(e-Licensing of Radiation Application).
12. For item Radiology High Frequency X ray Machine (100 mA), it is mandatory for conducting a physical/virtual demonstration of quoted equipment at any site at their own (Firm) cost.
13. The supplier/ Manufacturer should give undertaking regarding the availability of spare parts for 10 years or more from the date of installation.

Revised Technical Specifications of Radiology High frequency X ray Machine (300 mA)
High frequency X-Ray machine suitable for general radiography.
X-RAY GENERATOR:
• High Frequency X-Ray generator having frequency of 50 KHz or more should be provided.
• Power output of generator should be 30 KW or more.
• Radiographic KV range should be 40 to 125 KV
• mAs range(RAD) 300 mAs or more
• Exposure time (Rad) 1ms to 5 Sec.
CONTROL:
• A very compact, soft touch control panel having following function & indications should be provided. The panel can be supplied in floor or wall mount with spill proof design.
• Following features should be available on the control panel
• Machine ON/OFF switch
• Digital display of KV & mAs
• Two point selection technique i.e. KV and mAs.
• KV & mAs increase and decrease switches.
• Tube focal spot selection switch
• Ready & X-Ray on switch with indicators
• Bucky selection switch
• Self diagnostic programme with indicators for earth fault error, KV error/ Inverter error , filament error and Tube's thermal Overload.
• Anatomical Programming Radiography (i.e. APR) should be provided in which KV & mAs are automatically selected depending upon the physique of the patient and part of the body to be X-Rayed.
• Anatomical Programming should be of minimum 200 programmes.
• A dual action hand switch with retractable cord should be provided for Radiation Protection of Operator.

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- There should be provision of auto shut off of Control if no key is pressed for 10mins.

X-RAY TUBE:

- One no. dual focus Rotating Anode X-Ray tube thermally protected
- Anode heat storage capacity of tube should be **140 KHU or more.**
- One Pair of 8 meter of H.V. cable
- One No. collimator with auto shut off facility should be provided.

HV TANK:

- A very compact H.V. Tank filled with high dielectric transformer oil/**latest technology of solid state type oil free HV tank** should be provided. The H.V. Tank should contain H.V. transformer, filament transformer, H.V. rectifiers & H.V. Cable receptacles.

TUBE STAND:

- Floor to ceiling/ceiling free stand with Counter Balanced Tube Head (Rotatable + or - 180 Degree), 360 Degree Rotatable: mounted on Floor to **ceiling/ceiling free Rails/wall supported stand rails** for convenient movement should be provided.

TABLE:

- Horizontal table with **6-way** movement of the table top should be provided.
- Longitudinal movement of the table top should more than 400 mm & transverse movement should be more than 160mm. It should have height adjustment facility.
- The Table should consist of motorized reciprocating bucky with Imported Grid of size 17¼ " x 18 7/8 " & of Ratio 8:1-85 lines/inch.
- The Bucky should cover the entire length of the table and should be locked at any desired position by an Electromagnetic lock.
- The Tabletop should be made of low radiation absorption, waterproof material.
- Table accessories like stainless steel cassette tray, compression band should be provided.
- Bucky tray should accommodate cassette up to 14" X 17 inch.

VERTICAL BUCKY STAND:

- Vertical bucky stand with oscillating Grid of ratio 8:1, 85 lines /inches is provided
- The bucky should move up & down & should be equipped with a stainless steel cassette tray
- The stand should be floor mounted type & can accommodate cassette up to 14" X 17".

ACCESSORIES:

Following accessories should be supplied with the machine at the time of installation

a) Lead Apron 0.5mm Pb equivalent	1No.
b) Lead Barrier 1.5mm Pb equivalent with lead viewing window	1 No.
c) Lead divider 14" X 17" (inch)	2 No.
d) Lead goggles	2 No.
e) Gonadal Shields	2 No.

POWER REQUIREMENT:

- The unit should be operable on 3 Phase, 440 Volts AC 50Hz with line-resist less than 0.4 Ohms. Line regulation + or - 10%

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OTHER REQUIREMENTS	
1.	The quoted model should be AERB approved. Relevant documents shall submit along with technical bid.
2.	The manufacturer should have ISO 9001:2015 and ISO 13485:2016. Valid documentation should be submitted in technical bid.
3.	The unit should be approved by AERB. (valid documentation should be submitted in technical bid).
4.	The company should submit technical compliance sheet as per technical specifications mentioning the make & model of quoted item in the Technical bid .
5.	The complaint of this equipment shall be attended within 72 hrs.
6.	The Company should provided QA & QC test report at the time of Installation & in every two years during guarantee period.
7.	Guarantee: Three years on complete unit from the date of the installation.
8.	CMC: CMC may be given for seven year (on yearly basis) after guarantee period of three years. CMC will be given @ 4% (of net rate exclusive of GST as applicable etc.) plus service tax (as applicable) and yearly escalation of 5 % on last year's CMC price. The rates of CMC may be awarded for seven years after guarantee.
9.	Installation will be done by supplier free of cost.
10.	The Company should submit original catalogue and data sheet (signed & stamped) of quoted item at the time of bid submission. Any declaration/ undertaking in this regard shall not be considered.
11.	The Firm shall provide guideline and support to consignee, required to register online official Website eLORA(e-Licensing of Radiation Application).
12.	For item Radiology High Frequency X ray Machine (300 mA), it is mandatory for conducting a physical/virtual demonstration of quoted equipment at any site at their own (Firm) cost.
13.	The supplier/ Manufacturer should give undertaking regarding the availability of spare parts for 10 years or more from the date of installation.

Revised Technical Specifications of Radiology High frequency X ray Machine (500 mA)	
High frequency X-Ray machine suitable for general radiography.	
X-RAY GENERATOR:	
•	High Frequency X-Ray generator having frequency of 50 KHz or more should be provided.
•	Power output of generator should be 40 KW or more.
•	Radiographic KV range should be 40 to 125 KV
•	mA range(RAD) 500 mA or more
•	Exposure time (RAD) 1ms to 2 Sec.
•	The x-ray control should have digital display of KV, mA and mAs.
•	The radiography KV with maximum number of steps
•	The techniques selector switch should be provided for selecting table radiography /bucky etc.

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CONTROL:

- A very compact, soft touch control panel having following function & indications should be provided. The panel can be supplied in floor or wall mount with spill proof design.
- Following features should be available on the control panel
- Machine ON/OFF switch
- Digital display of KV& mAs
- **Two point selection technique i.e. KV and mAs.**
- KV & mAs increase and decrease switches.
- Tube focal spot selection switch
- Ready & X-Ray on switch with indicators
- Bucky selection switch
- Self diagnostic programme with indicators for earth fault error, **KV error/Inverter Error**, filament error and Tube's thermal Overload.
- Anatomical Programming Radiography (i.e. APR) should be provided in which KV & mAs are automatically selected depending upon the physique of the patient and part of the body to be X-Rayed.
- Anatomical Programming should be of minimum **200 programmes or more.**
- A dual action hand switch with retractable cord should be provided for Radiation Protection of Operator.
- There should be provision of auto shut off of Control if no key is pressed for 10 mins.

X-RAY TUBE:

- One no. dual focus Rotating Anode X-Ray tube thermally protected.
- Anode heat storage capacity of tube should be **140 KHU or more.**
- One Pair of 8 meter of H.V. cable.
- One No. collimator with auto shut off facility should be provided.

HV TANK:

- A very compact H.V. tank filled with high dielectric transformer **oil/ latest technology of solid state type oil free H.V. Tank** should be provided. The H.V. tank should contain H.V. transformer, filament transformer, H.V. rectifiers & H.V. bale receptacles.

TUBE STAND:

- **Floor to ceiling/ceiling free/wall supported stand** with Counter Balanced Tube Head (Rotatable + or -180 Degree), 360 Degree Rotatable: mounted on **floor ceiling/ceiling free/wall supported stand** Rails for convenient movement should be provided.

TABLE:

- Horizontal table with **6-way** movement of the table top should be provided.
- Longitudinal movement of the table top should more than 400 mm & transverse movement should be more than 160mm It should have height adjustment facility.
- The Table should consist of motorized reciprocating bucky with Imported Grid of size 17¼ " X 18 7/8" & of Ratio 8:1-85 lines/inch.
- The Bucky should cover the entire length of the table and should be locked at any desired position by an Electromagnetic lock
- The Tabletop should be made of low radiation absorption, waterproof material.

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- Table accessories like stainless steel cassette tray, compression band should be provided.
- Bucky Tray should accommodate cassette upto 14" X 17 inch.

VERTICAL BUCKY STAND:

- Vertical bucky stand with oscillating Grid of ratio 8:1, 85 lines /inches is provided.
- The bucky should move up & down & should be equipped with a stainless steel cassette tray.
- The stand should be floor mounted type & can accommodate cassette up to 14" x 17".

POWER REQUIREMENT:

- The unit should be operable on 3 Phase, 440 Volts AC 50Hz with line resist less than 0.4 ohms. Line Regulation + or - 10%

ACCESSORIES:

Following accessories should be supplied with the machine at the time of installation

a) Lead Apron 0.5mm Pb equivalent	1 No.
b) Lead Barrier 1.5mm Pb equivalent with lead viewing window	1 No.
c) Lead divider 14" X 17" (inch)	2 No.
d) Lead goggles	2 No.
e) Gonadal Shields	2 No.

OTHER REQUIREMENTS

1. The quoted model should be AERB approved. Relevant documents shall submit along with technical bid.
2. The manufacturer should have ISO 9001:2015 and ISO 13485:2016. Valid documentation should be submitted in technical bid.
3. The unit should be approved by AERB. (valid documentation should be submitted in technical bid).
4. The company should submit technical compliance sheet as per technical specifications mentioning the make & model of quoted item in the Technical bid .
5. The complaint of this equipment shall be attended within 72 hrs.
6. The Company should provided QA & QC test report at the time of Installation & in every two years during guarantee period.
7. **Guarantee:** Three years on complete unit from the date of the installation.
8. **CMC:** CMC may be given for seven year (on yearly basis) after guarantee period of three years. CMC will be given @ 4% (of net rate exclusive of GST as applicable etc.) plus service tax (as applicable) and yearly escalation of 5 % on last year's CMC price. The rates of CMC may be awarded for seven years after guarantee.
9. Installation will be done by supplier free of cost.
10. The Company should submit original catalogue and data sheet (signed & stamped) of quoted item at the time of bid submission. Any declaration/ undertaking in this regard shall not be considered.
11. The Firm shall provide guideline and support to consignee, required to register online official Website eLORA(e-Licensing of Radiation Application).
12. For item Radiology High Frequency X ray Machine (500mA), it is mandatory for conducting a physical/virtual demonstration of

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quoted equipment at any site at their own (Firm) cost.

13. The supplier/ Manufacturer should give undertaking regarding the availability of spare parts for 10 years or more from the date of installation.

Revised Technical Specifications of Radiology High frequency X ray Machine (100 mA Mobile)

X-RAY GENERATOR:

- High Frequency X-Ray generator having frequency of **50 KHz** or more.
- Power output should be **6.0 KW** or more
- Radiographic KV range should be **40 to 100 KV** or more.
- Rad mA : 100 mA or more
- Exposure Time 7 ms to 7 sec or less

X-RAY TUBE HEAD:

- Monoblock version X-Ray Tube Head with **Rotating Anode with dual focuses** X-Ray Tube. A very compact H.V. Tank filled with high dielectric transformer oil or Monoblock HT tank should be provided. The monoblock consists of Tube, H.V, transformer, filament transformer, H.V. Rectifiers & One No. Manual Collimator should be provided, with auto off facility.
- **Anode heat storage capacity of tube should be 60 KHU** or more.

CONTROL PANEL:

- **Two point selection technique i.e. KV and mAs.**
- KV increase and decrease switches
- mAs increase and decrease switches.
- Machine ON/OFF switch
- Collimator Lamp ON Switch-on collimator side and control board.
- Standby & Exposure Switch
- Self diagnostic Programme with indicators for:-
 - Earth fault error
 - **KV error/ Inverter error**
- Filament error
- Tube head Thermal Error
- Stand by (Ready) & X-Ray On Indicator
- Incoming Voltage Indicator. There should be provision for the machine to work from 195 Volts Input supply to 265 V input supply.
- Anatomical Programming Radiography (i.e. APR) should be provided in which KV & mAs are automatically selected depending upon the physique of the patient and part of the body to be X-Rayed.
- Anatomical Programming should be of minimum 200 programmes should be provided. There should be a provision that the control should get off, if no key is pressed for 10 mins.
- A Hand switch with Dual action for exposure Release with Retractable Cord is should be provided for Radiation Protection to the Operator.

TUBE STAND:

- Mobile stand with 4 wheel design, which ensures easy mobility & steering. The spring Balance Stand (No Gas Spring) should be very light in weight with tube arm. It should be very easy to maneuver & allow smooth movements of Tube Head in vertical plane. Lead lined cassette

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storage box. Large wheels for easy mobility should be provided. The stand is designed for maximum maneuverability of the unit and is able to achieve tube focus to floor of 75 inches and tube focus to table top distance of 46" (Standard Radiography Table). The equipment should occupy minimum floor area & is capable to be taken through elevators with ease.

- The Entire Tube Arm should be Swiveled + or - 90 degree (180) degree for taking sidewise X-Rays without moving Machine.

POWER SUPPLY:

- The unit should be operable on 230 Volts, 50Hz, 15 Amps with line regulation of + or -15% Line resistance less than 0.4 ohms.

ACCESSORIES:

Following accessories should be supplied with the machine at the time of installation

a) Lead Apron 0.5mm Pb equivalent	1No.
b) Lead goggles	2 No.
c) Gonadal Shields	2 No.

OTHER REQUIREMENTS:

1. **The quoted model should be AERB approved. Relevant documents shall submit along with technical bid.**
2. **The manufacturer should have ISO 9001:2015 and ISO 13485:2016. Valid documentation should be submitted in technical bid.**
3. The unit should be approved by AERB. (valid documentation should be submitted in technical bid).
4. The company should submit technical compliance sheet as per technical specifications mentioning the make & model of quoted item in the Technical bid
5. **The complaint of this equipment shall be attended within 72 hrs.**
6. **The Company should provided QA & QC test report at the time of Installation & in every two years during guarantee period.**
7. **Guarantee:** Three years on complete unit from the date of the installation.
8. **CMC:** CMC may be given for seven year (on yearly basis) after guarantee period of three years. CMC will be given @ 4% (of net rate exclusive of GST as applicable etc.) plus service tax (as applicable) and yearly escalation of 5 % on last year's CMC price. The rates of CMC may be awarded for seven years after guarantee.
9. Installation will be done by supplier free of cost.
10. The Company should submit original catalogue and data sheet (signed & stamped) of quoted item at the time of bid submission. Any declaration / undertaking in this regard shall not be considered.
11. The Firm shall provide guideline and support to consignee, required to register online official Website eLORA(e-Licensing of Radiation Application).
12. For item Radiology High frequency X ray Machine (100 mA mobile), It is mandatory for conducting inspection of already installed item at any site at their own (Firm) cost.
13. The supplier/ Manufacturer should give undertaking regarding the availability of spare parts for 10 years or more from the date of installation.

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Revised bid schedule:-


- E-bids are invited as per following revised time schedule:-

Existing Dates			Extended Dates		
Last date & time for sale of bid form	Last date & time of receipt of bid form	Date & time of opening of technical bid	Last date & time for sale of bid form	Last date & time of receipt of bid form	Date & time of opening of technical bid
06.09.2021 06.00 p.m	06.09.2021 06.00 p.m	07.09.2021 03.00 p.m	09.09.2021 06.00 p.m	09.09.2021 06.00 p.m	10.09.2021 03.00 p.m

It is also clarified that information of award of contract shall be communicated to all participating bidders on the website www.rmssc.nic.in and sppp.raj.nic.in. Please note that individual bidder will not be intimated."

Note:- Please note that all above amendments/corrigendum in technical specifications/bid conditions is the integral part of (Section-V, Schedule of Supply, and Point no. 3) and the bid document. This corrigendum/addendum should be signed and annexed with bid document. All other terms & conditions remains the same.

This bears the approval of M.D., RMSCL, Jaipur.


Executive Director (EPM)
RMSCL, Jaipur

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