

**SPECIFICATION FOR
IRIDIUM-192 GAMMA CAMERA**

NOTE:-

1. Vendor must submit complete information against each clause. The offer meeting these clauses would only be processed.
2. The "Offered" Column and where applicable, the "Deviations" & "Remarks" Column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications/requirements shall be treated as non-compliance.
3. The offer and all documents enclosed with offer should be in English language only.
4. All dimensions are in mm unless otherwise stated.

ADDRESS OF THE SUPPLIER :	ADDRESS OF THE INDIAN AGENTS :
TELEPHONE NOS.:	TELEPHONE NOS.:
E-MAIL ADDRESS :	E-MAIL ADDRESS :

SCOPE: SUPPLY, ERECTION & COMMISSIONING OF IRIIDIUM-192 GAMMA CAMERA AS PER SPECIFICATION BELOW

INDENT NO.: 20156637, Dated : 05/04/16

SL.NO.	DESCRIPTION OF BHEL REQUIREMENT	REQUIRED	OFFERED	DEVIATIONS	REMARKS
1.0	Purpose:				
1.1	This specification is for Portable, Light weight, rugged construction, compact Iridium-192 Gamma Camera (also known as Industrial Gamma Ray Exposure Device-IGRED for Iridium-192 source), with essential operational accessories and with proper safety features suitable for industrial radiography of casting , forging , fabricated / welded assemblies etc.as per International / National standards / BHEL specifications. The Camera shall be supplied without Iridium-192 source.	Vendor to confirm			
2.0	Essential features :				
2.1	Iridium-192 gamma Camera (IGRED)				

REC'D
05.04.16
RAJ KUMAR
AS-D NDT

Amit Kumar
05/04/16
AMIT KOMAR
DM, NDT

5/11/16
A. Sharma
SDGM (QC-F)

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SL.NO.	DESCRIPTION OF BHEL REQUIREMENT	REQUIRED	OFFERED	DEVIATIONS	REMARKS
2.1	Iridium-192 gamma Camera (IGRED)				
2.1.1	The equipment shall have the approval of AERB (Type/Model approval) .	Vendor to confirm			
2.1.2	Supplier has to enclose a copy of type approval certificate with validity period from AERB, along with the offer.	Vendor to submit			
2.1.3	Type B(U) package meeting AERB code /IAEA requirements.	Vendor to confirm			
2.1.4	Dose rate limit in the vicinity of IGRED shall conform to AERB code for the portable device.	Vendor to confirm			
2.1.5	The Supplier shall have the AERB approved Source supply facility for the IGRED .	Vendor to confirm			
2.1.6	Design shall meet International Specifications: ISO 3999-1/ IAEA TS-R1 /ANSI N432-1980.	Vendor to confirm			
2.1.7	The equipment shall be operated in ambient temperatures from 5 deg C to 45 deg C, humidity 10-95 % (RH).	Vendor to confirm			
2.1.8	Label :	The camera shall be well inscripted on the body of the device as per the requirement of IAEA / AERB.	Vendor to confirm		
2.1.9	Weight	25.0 kg.(Maximum)	Vendor to specify		
2.1.10	Length, width & height	40 cm.x 25 cm. x 25 cm. (max.)	Vendor to specify		

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05.04.16
RAJKUMAR
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Amit Kumar
05/04/16
AMIT KUMAR
DM, NDT

Akshans
5.4.16
A K Sharma
SDom (CC-F)

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2.2	Source Housing				
2.2.1	Source Housing shall consist of depleted Uranium sheilding encased inside stainless steel / CrNi steel/ Titanium cover. Source tunnel in the depleted Uraninum shall have Titanium tube / Tungustun alloy tube to accommodate Ir-192 source mounted on source assembly (Pigtail). Source Housing shall have a connector in the front for source guide tube and a connector in back for connecting Control Device (cranking unit). It shall also have proper locking system.	Vendor to confirm			
2.2.2	Source Capacity :	100 to 150 Curie for Iridium-192 radioisotope.	Vendor to specify		
2.2.3	Source Assembly (Pigtail) :	It shall be flexible with provision to crimp / swage the sealed radioactive source-capsule on one end, while the opposite end of this source Assembly (Pigtail) should have a connector for connecting source drive cable (teleflex cable). It shall not make any resistance to movement in guide / extension tube.	Vendor to confirm		
2.2.4	Source Housing Conduit /Source tunnel tube	Titanium / Tungustun alloy	Vendor to specify		
2.2.5	Source Housing Shielding :	Depleted Uranium.	Vendor to confirm		
2.2.6	Source Housing Cover :	Stainless Steel / Titanium/CrNi Steel	Vendor to specify		

RCCT
05/04/16
RAJ KUMAR
AE-I NDT

Amit Kumar
05/04/16
AMIT KUMAR
DM. NDT

AK Sharma
5.4.16
AK Sharma
SD CM (CC-F)

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2.2.7	Carrying Device The source housing shall be provided with suitable handling device for easy movement and stable positioning.	Vendor to confirm			
2.3	Control Device				
2.3.1	Reel type Control Device, 1 No., approx. 50 feet length will be required with each camera. The same will have free movement during operation.	Vendor to confirm			
2.3.2	Control Device Interface : The Source Housing shall be provided with safe interface to connect with the Control Device.	Vendor to confirm			
2.3.3	Safety of Operation : The connecting system shall ensure that Control Device drive cable shall not get disconnected from Source Assembly (pigtail) while in operation.	Vendor to confirm			
2.4	Guide Tube & Extension Tube				
2.4.1	Each camera shall be required with 1 no. fixed stop guide tube (approx. 2.1 meter / 7 feet in length) and 1 no. extension tube (approx. 2.1 meter / 7 feet in length). Fixed guide tube and extension tube shall be flexible with protection cover and shall not make any resistance to source movement.	Vendor to confirm			
2.4.2	Source Guide Tube Interface : The Source Housing shall be provided with safe interface to connect with the Source Guide Tube.	Vendor to confirm			

RCCD
05.04.16
RAJ KUMAR
AEI NDT

Amit Kumar
05/04/16
AMIT KUMAR
DM, NDT

AK Sharma
S.M. 16
AK Sharma
SDGM (QC-F)

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2.4.3	Safety of Operation :	The connection system shall prevent the accidental projection of source from the housing.	Vendor to confirm			
2.4.4	Radiation Level :	Radiation level shall not increase while connecting Control Device and Source Guide Tube with the camera.	Vendor to confirm			
2.4.5	Safety of Radiation Source	The connecting system shall ensure that the guide tube shall not get disconnected from Source Housing while in operation.	Vendor to confirm			
2.5	Locking System					
2.5.1	The gamma camera shall be provided with damage free locking mechanism.		Vendor to confirm			
2.5.2	It shall have foolproof system to ensure complete retraction of source inside camera.		Vendor to confirm			
2.5.3	It shall have automatic locking to prevent unintentional operation.		Vendor to confirm			
2.6	Tungsten Collimator					
2.6.1	Tungsten Collimator shall have 60 degree (+/- 10 degrees), side opening, light in weight, secure interface with guide tube, trouble free movement of Pigtail with source inside collimator. One number tungsten collimator shall be offered with each camera.		Vendor to confirm			
2.7	Source Assembly (Pigtail) :					
2.7.1	If new Source Assembly (pigtail) is required for Source reloading each time, four nos. of pigtails shall be offered with each camera.		Vendor to specify and confirm			

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05.04.16
RAJ KUMAR
A.E.-I NDT

Amit Kumar
05/04/16
AMIT KUMAR
DM, NDT

AK Sharma
5-4-16
A K Sharma
SDCM (QC-F)

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2.7.2	Guaranteed supply of Pigtail compatible to radiography device with traceability certificate for future reloading of the source.	Vendor to confirm			
3.00	General conditions / Requirements				
3.1	Warranty : Warranty of at least 12 months from the date of commissioning of the equipment shall be provided.	Vendor to confirm			
3.2	Performance : The equipment and accessories should be robust and have a high functional stability. It should be capable of giving guaranteed performance with minimum maintenance.	Vendor to confirm			
3.3	Mandatory spares and accessories for 5 years of trouble free operation shall be quoted with separate price details.	Vendor to submit			
3.4	Each Iridium 192 Gamma Camera shall consist of following components and price of each of the following shall be separately quoted in price bid: a) Gamma Camera (Source Housing) 1 No. b) Control Device 1 No. c) Source Guide tube 1 No. d) Extension tube 1 No. e) Collimator 1 No.	Vendor to submit			

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05.04.16
RAS KUMAR
AES NDT

Amit Kumar
05/04/16
AMIT KUMAR
DM, NDT

Akshansh
5.4.16
A K Sharma
SDCM (QG-F)

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3.5	The supplier shall submit a descriptive statement on function and necessity of the offered components.	Vendor to confirm			
3.6	The supplier shall provide 4 sets (hard copy) of operational / instructional/ maintenance manual alongwith detailed specification in English language.	Vendor to confirm			
3.7	The supplier shall submit technical offer well indexed, with page numbering.	Vendor to submit			
3.8	The supplier shall provide at least three days comprehensive training on operation, routine maintainance and trouble shooting, etc. at BHEL , Haridwar works.	Vendor to confirm			
3.9	Its is sole responsibility of the supplier that equipment shall be commissioned and proved at BHEL Haridwar works in all respect for accuracy & performance.	Vendor to confirm			
3.10	Origin or Principal manufacturer of the equipment.	Vendor to specify			
3.11	Supplier shall have service centre in India. Smooth after sales service of the equipment shall be guaranteed.	Vendor to confirm and submit details			
3.12	Annual Maintenance Contract(AMC) The BIDDER has to quote for AMC after expiry of warranty period with detailed scope of work. (NOTE:AMC is to be quoted seperately and it will not be considered for evaluation of lowest bid)	Vendor to submit			

RCCD

05.04.16
RAT KUMAR
AE-D NDTAmit Kumar
05/04/16
AMIT KUMAR
DM, NDTSharma
5.4.16
A R Sharma
SDM (QC-F)

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4.0	QUALIFYING CONDITIONS :				
4.1	The equipment offered for supply shall have the AERB approval (Type/Model approval) for the installation in India and proof shall be submitted alongwith the offer.	Vendor to confirm and submit			
4.2	The manufacturer of the equipment OR its' authorised agent only shall quote.	Vendor to specify			
4.3	The supplier shall submit a list of customers including PSUs, Govt. organisations, reputed technical/research institutes, large scale private sector etc., to whom, his firm has supplied the offered equipment in last five years.Following details shall be given by the vendor about the companies where the offered machine has been supplied:	Vendor to submit			
4.3.1	Name/designation, Phone No.and E-mail address of the contact person.	Vendor to submit			
4.3.2	Complete postal address of the customer.	Vendor to submit			
4.3.3	Year of commissioning.	Vendor to submit			
4.3.4	Type/ Model of equipment supplied to customer	Vendor to submit			
4.4	Performance certificate for the offered model, year of commissioning, broad specifications and application, from at least 2 customers in INDIA, regarding satisfactory performance of that machine supplied to them.Contact details (as mentioned in Cl 4.3.1 and 4.3.2 above) of the person issuing the performance cetificates shall be provided by the vendor.	Vendor to submit			
4.5	BHEL reserves the right to verify the information provided by the vendor with the vendor's customers directly.	Vendor to confirm			

RCCV
05.04.16
RAJ KUMAR
AE-I NDT

Amit Kumar
05/04/16
AMIT KUMAR
DM, NDT

Sharma
5/4/16
(A K Sharma)
SDCM (QC-F)

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4.6	Demonstration of similar system at any place in India should be arranged by the vendor, if needed.	Vendor to confirm			
4.7	Technical evaluation of only those offers will be made who qualify as per the above qualifying conditions. Other offers shall not be considered.	Vendor to confirm			
5.0	ACCEPTANCE CRITERIA :				
5.1	After satisfactory installation and commissioning of the equipment at BHEL works, acceptance of the equipment will be based on satisfactory performance (without source).	Vendor to confirm			

RCC
05.04.16
RAJKUMAR
AE-2 NDT

Amit Kumar
- 05/04/16
AMIT KUMAR
DM, NDT

Akshama
5/4/16
AKSHAMA
SDGM (QC-F)