S-104-Q-ISTOPE CAMERA-PtB

TECHNICAL SPECIFICATIONS for 100Ci Co-60 source projector with Source.(Exposure device /Camera)

S. No.	PARTICULARS	BHEL SPECIFICATIONS	Bidder's OFFER [With Complete Technical Details]
1.0	Area of Application	For Gamma Radiography of materials and welded structures made of Steel, with thickness ranging from 60mm to 200mm.	
2.0	Principle of Operation	Gamma Ray source projector (Exposure device) is a shielding container with the provision to take out the isotopic source for Radiographic exposure with the help of a Teleflex driving system, and to retrieve the isotope back to the shielding container at the termination of the exposure, for safe storage .The projector shall have the safe locking mechanism and connector selector assembly for safe handling of the isotope.	
3.0	Design Base	Projector should be designed, tested and manufactured to meet the requirements of ANSI N-432-1980, ISO 3999-1 2000E,IAEA TS-R-1 (1996), USNRC 10 CFR34, 10CFR71 and 49CFR173.Additionally the projectors should be designed, manufactured and serviced under a QA program that has been accredited to ISO 9001(2000) and approved in accordance with USNRC 10CFR71,Subpart H.	
4.0	Constructional Features	The exposure device body containing depleted Uranium shield, locking mechanism, outlet port, protective covers etc. The device body consists of a titanium "s" tube to house the flexible source pigtail. A control unit comprised of crank and gearbox, a pair of control housing, a Teleflex drive cable and a safety connector assembly. The source guide tube with flexible stainless steel tubes with protective poly vinyl covering and provision to fit with the projector.	
5.0	Specification of the equipment	The details as given below	
5.1	Capacity of the source projector	100 Ci Co-60 Radioisotope. The projectors shall be certified type B (M) package./supplier to specify.	
5.1	Shielding Material	Depleted Uranium	
5.2	Source Conduit in exposure device	'S'type	
5.3	Material for conduit	Preferably Titanium/supplier to specify.	

5.4	Material for outer casing	Stainless Steel / Impact resistant plastic	
5.5	Weight of camera	Shall be Less than 300 Kgs	
5.6	Connector assembly and Lock	The control unit connector assembly and the connector safety lock shall be preferably mounted at the backside of the projector.	
5.7	Control unit	Reel type control unit system comprising the basic control unit, a control housing assembly, a Teleflex drive cable and a safety connector assembly. The control housing assembly consists of an outer sheath of flexible metal composite cable with a polyvinyl cover and a Teflon inner lining. The Teleflex driving cable consists of spiral wound flexible steel. The length of the control cable shall be 100 feet to facilitate the source travel of at least up to 50 feet.	
5.9	Source guide tube	Source guide tubes shall be flexible stainless tubes with a protective poly vinyl covering and can be used in 7 Feet lengths up to 35 feet. Intermediate and termination source guide tubes which are interconnectable to provide required length, and the termination tube shall have a permanent fixed source stop.	
5.10	Source assembly(Pig tail)	The source assembly shall consist of a hermetically sealed capsule attached to a leader cable. The opposite end of the leader cable shall have a connector for positive attachment to the source drive cable.	
6.0	Packaging	Projector should meet IAEA and USNRC requirements for type B packaging	
7.0	Type approval	The projector shall have the Type approval from Atomic Energy Regulatory Board, Mumbai	

8.0	Scope of supply.	**The scope of supply includes:** **Co-60 source projector with 100Ci Source and the following accessories.** 1) Source Holder (Pigtail)-1No. 2) 50ft /15 .0m Reel Type Control with odometer-2no. 3) Control Cable lock and fitting with Key-1No. 4) 7ft/2.1m Source Guide Tube Extension-4 nos 5) 7ft/2.1m Source Guide Tube with Fixed Stop-2no. 6) Source Positioning Kit-1No. 7) Transport Cart Co-60 source projector-1No. 8) Collimator Tungsten20x360deg.Panoramic-1No. 9) Collimator Lead 60deg.side-1No. 10)Calibrated Survey meters in Si units (GM/ Ionization/ counter type)-2No. 11) Gamma Zone Monitor (Wall mounted type)-1 No. 12) Dimensional (Source Size) report for Cobalt 60 source. 13) Conformance certificate in accordance with AERB regulations, etc.	
9.0	Consumables for the Source Projector device& Accessories .	BIDDER has to list down the CONSUMABLES, if any to be used in the Operation of the Source Projector system and QUOTE with UNIT RATE for all the listed consumables, to be procured with the system.	
10.0	Spares for Source Projector device& Accessories	BIDDER has to list down the essential Spares required for ensuring normal operation of the system for 2 Years. BIDDER to QUOTE with UNIT RATE for all the listed SPARES, to be procured with the system.	
11.0	Performance Prove-Out at BHEL	The Supplier has to conduct demonstration of the satisfactory performance operation , control and safety aspects of the source projector system with 300Ci Co-60 source and it's accessories, at BHEL.	
12.0	Inspection & Acceptance	The over all system and accessories shall be offered for Inspection by BHEL Engineers at vendors works, if warranted. The satisfactory operation & control of the Co-60 Source Projector with 100Ci source, and it's accessories ,shall be demonstrated .	
13.0	Installation and commissioning	The over all source Projector system with 100Ci source and it's accessories, to be installed & commissioned at BHEL Works, FREE OF COST, by the SUPPLIER 's representative.	

14.0	Documentation in ENGLISH Language	3 Copies (In English) of the Operation & Maintenance Manuals shall be supplied, at the time of inspection by BHEL Engineers. In addition, one SOFT COPY in CD to be supplied.	
15.0	Performance Guarantee	The over all Co-60 source Projector system with 100Ci source and it's accessories are to be guaranteed for its performance for a minimum period of one year from the date of performance acceptance at BHEL Works.	
16.0	Service and Spares Support Requirements	Vendor shall ensure after the guarantee period, through trained service personnel in India for next 5 years as and when need arises. Spares to be made available within the shortest time.	
17.0	Training on Operation & Maintenance	Complete Training for BHEL Engineers is to be given on Operation & Maintenance of the OFFERED system.	
18.0	Annual Maintenance Contract – AMC/ Technical support	The BIDDER has to QUOTE for AMC with detailed scope of work.	
19.0	Safety and Quality Standards	Supplier to ensure that Safety and Quality of Over all system shall conform to International Standards. Conformance certificate to be along with the system.	