



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY	Phone: +91 431 257 7421 Email : vkaruna@bhel.in Web : www.bhel.com
NOTICE INVITING TENDER	

TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two Parts	2601900009	28.03.2019	22..04.2019

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity	(Indigenous Vendors) Matl. will be Delivered to
10	DESIGN,MANUFACTURE,SUPPLY,E&C OFRADIOGRAPHIC TESTING HALLDOOR,X-RAY EQUPT.SUPPORT&10T CAPACITY RT HALL DOOR as per the technical specification & commercial conditions applicable (to be downloaded from web site (http://www.bhel.com) http://www.bhel.com/tender/tender_home.php or https://eprocure.gov.in/epublish/app)	1 Set	FOR, BHEL Stores, High Pressure Boiler Plant, Tiruchirappalli - 620014

Important points to be taken care during submission of offer

1. Material shall be delivered to: Indigenous Vendors: As stated above.
2. Delivery required 7 week including PDI from the date of purchase order.
3. Erection & Commissioning period required 3 Week from the date of intimation by BHEL to vendor for deputation of their Engineers for E&C.
4. EMD for this Tender will be (not less than): INR 1,50,000/-
5. Compliance Form Nos.: TRY/IND/06 to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
6. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions (refer MM / CE / GENL / 001 - EMD) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site (<http://www.bhel.com>) http://www.bhel.com/tender/tender_home.php or from the Government tender website <https://eprocure.gov.in/epublish/app> under above Enquiry reference.

(This is not an E-tender, please submit your offer in hard copies)

Tenders should reach us before 14:00 hours on the due date
Tenders will be opened at 14:30 hours on the due date
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present

Yours faithfully,
For BHARAT HEAVY ELECTRICALS
LIMITED

V. Karuna
DGM / Capital Equipment / MM

Cl. No.	Description	Bidder's Response
1.0	Purpose: Fabrication and installation of steel doors, X ray equipment support and Transfer Trolley for Radiographic Testing (RT) hall available in BHEL, Tiruchirappalli premises, as per the details given in subsequent clauses:	Bidder to confirm
1.1	Scope of supply: a. Mechanised movable Double leaf steel door for RT Hall –as specified in Cl. No. 3.0 - 1 Set. b. Hinged steel door for side entrance of RT Hall as specified in Cl. No. 4.0 - 1 No. c. Manually operated adjustable Holder for X-Ray equipment as specified in Cl. No. 5.0 - 1 No. d. 10 T Capacity Transfer Trolley as specified in Cl. No. 6.0 - 1 No.	Bidder to confirm
2.0	Qualifying criteria for the Bidder:	
2.1	The vendor shall have minimum of three years of experience in design and fabrication of heavy steel structure and installation of such driving mechanism suitable for linear / rotary movement of heavy loads. Minimum one number of PO copy / MOM / Commissioning Report / Performance certificate - one for heavy steel structure fabrication and another for drives, which have been completed within the last three years.	Bidder to provide documents
2.2	Delivery date shall be within 3 months from the placement of order.	Bidder to confirm
2.3	The vendor shall visit the facility and assess the work environment and requirements before submission of the proposal.	Bidder to confirm
2.4	Only the vendors who visit the facility, assess and fully understood the job requirement will be qualified to participate in the tender	Bidder to Note & Confirm
3.0	Mechanised Double leaf steel door for RT Hall: Design, manufacture, supply and Installation of one set of Mechanised steel door (Double leaf) for RT Hall shall be as specified in the subsections below:	Bidder to confirm
3.1	The door shall be fabricated using Carbon steel plate.	Bidder to confirm
3.2	All the plates used for leaf and lap shall be completely inspected ultrasonically and ensured that it is free from external & internal defects.	Bidder to confirm
3.3	All butt weld joints shall be full penetration welds. Engagement of qualified welders, proper consumables, Pre-heating and post heating are to be ensured for welding. Post weld Stress Relieving Heat treatment is to be carried out. Avoid distortion during welding.	Bidder to confirm

Cl. No.	Description	Bidder's Response
3.4	All weld joints also to be subjected to Magnetic Particles Inspection and Ultrasonic Testing.	Bidder to confirm
3.5	Ultrasonic Testing and acceptance criteria shall be in accordance with ASTM E 435-2012 and report for the same shall be submitted.	Bidder to confirm
3.6	Suitable materials should be used for support structures such as for sides, top and bottom.	Bidder to confirm
3.7	The door shall be of sliding type with double leaf as per block diagram given in figure 1 and figure 2	Bidder to confirm
3.8	Height of each leaf shall be about 4000 mm (to be supported with Design Drawing)	Bidder to submit drawing.
3.9	Width of each leaf shall be about 3000 mm (to be supported with Design Drawing).	Bidder to submit drawing.
3.10	Thickness of the door shall be 100 mm within tolerance +10/-0 mm	Bidder to confirm
3.11	Lapping Plates of 300 mm (width) x 50 mm (thick) shall be welded for the entire height on each leaf as shown in Figure 1 .	Bidder to confirm
3.12	Each leaf shall be constructed in such a way that it should not contain more than 3 pieces.	Bidder to confirm
3.13	Each Leaf shall be supported by a separate wheel base with drive motor & gear box to impart "to and fro linear movement" for opening and closing of the door.	Bidder to confirm
3.14	Door leaves shall be suitably supported at the top with guide rollers to keep the door in vertical condition and to prevent from falling at any location.	Bidder to confirm
3.15	For the purpose of safety, Limit switches & Mechanical stoppers shall be provided at suitable locations.	Bidder to confirm
3.16	Clearance between the door leaf and the NDT wall shall not be more than 75 mm .	Bidder to confirm
3.17	Bottom of the leaf plate shall be below the floor level of the RT hall by a minimum of 150 mm . Door leaves shall be relieved at the bottom to move over the rails of the transfer trolley.	Bidder to confirm
3.18	Flatness of the surface of the leaves shall be maintained within 10mm .	Bidder to confirm
3.19	The surface of the doors shall be free from rust, pitting and other physical damage.	Bidder to confirm
3.20	Base structure with wheels should be rigid enough to hold the entire weight and should slide smoothly over the rails / guide ways.	Bidder to confirm
3.21	Drive motors and Gear boxes shall be easily accessible for maintenance.	Bidder to confirm
3.22	Rails / guide ways for the movement of the door leaves shall be supplied along with the doors.	Bidder to confirm
3.23	Rails / guide ways for the movement of the door leaves & door leaves shall be designed in such a way that they should not interfere with the rails provided for the movement of the Transfer Trolley. Tentative arrangement is to be submitted with the offer.	Bidder to confirm

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3.24	It is required to operate the door at a speed of 1-2 m /min (approx.)	Bidder to confirm
3.25	Alarm (visual and audible) shall be provided during the operation of the door	Bidder to confirm
3.26	Control Panel & hand held pendant: Control panel and pendant should have the following features: a. Key for providing access to the operation of Control Panel & Pendant b. Buttons for Forward and Reverse movement c. Knob for speed variation d. Button for Emergency Stop e. Operation of both the Control panel and Pendant shall be from outside the Hall, with close proximity with the door. f. Pendant should have a cable of length 10 m (minimum) enclosed with a wire braided flexible conduit. g. The door shall also be opened and closed by using a remote control system (Wireless). Suitable and rugged remote to perform all the above mentioned operations shall be provided.	Bidder to confirm
4.0	Hinged steel door for Side entrance of RT Hall	
4.1	This door shall be of manually operated - hinged Steel door to be mounted at the side entrance of the RT Hall from Control Room as shown in Figure-1 . Dimensions of the opening in the wall are: Height 2050 mm X Width 850 mm.	
4.2	The door shall be fabricated using Carbon steel plate.	
4.3	All the plates used for leaf & frame shall be completely inspected ultrasonically and ensured that it is free from external & internal defects.	
4.4	All butt weld joints shall be full penetration welds. Engagement of qualified welders, proper consumables, Pre-heating and post heating are to be ensured for welding. Post weld Stress Relieving Heat treatment is to be carried out. Avoid distortion during welding & Stress Relieving.	
4.5	All weld joints also to be subjected to Magnetic Particles Inspection and Ultrasonic Testing.	
4.6	Ultrasonic Testing and acceptance criteria shall be in accordance with ASTM E 435-2012 and report for the same shall be submitted.	
4.7	Suitable materials should be used for support structures such as for sides, top and bottom.	

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4.8	Thickness of the door shall be 40 mm within tolerance +10/-0 mm	
4.9	Suitable frame with arrangements for fixing with the wall & hinges to the door have to be designed and manufactured.	
4.10	Design and dimensions of the Frame and door are in such a way that there should not be any gap & less thickness areas to prevent the leakages of radioactive rays. Avoid providing bottom member in the frame (or) projection of the frame above the floor level to facilitate hand trolley movement.	
4.11	Leaf of the door shall be constructed in such a way that it should not contain more than 3 pieces.	
5.0	<u>Adjustable Holder for X-Ray equipment</u>	
5.1	Support Structure shall be fabricated in Carbon steel plate. Capable to support X ray equipment which is around 60 Kg in weight.	
5.2	Cantilever support structure with adjustable height of cantilever as given in Figure 3 .	
5.3	The cantilever shall be adjustable type to adjust the height.	
5.4	The column of the fixture shall be rigid and support the cantilever and X ray equipment for safe handling .	
5.5	The cantilever can be adjustable along horizontal direction to adjust the distance between X ray equipment and column.	
5.6	The height of the fixture shall be roughly around 2000 to 2200 mm.	
6.0	<u>10 T Capacity Transfer Trolley</u>	
6.1	The trolley shall be fabricated with carbon steel material, which will be used to carry metal components from workshop into the Radiography hall.	
6.2	It shall have a payload of minimum 10 Ton.	
6.3	The trolley shall be designed to be positioned on broad gauge rails (gap between rails is 1676mm).	
6.4	The length of the trolley shall be 3000 mm within the tolerance of +10/-0 mm.	
6.5	Width of the trolley shall be 2200 mm within the tolerance of +10/-0 mm.	
6.6	Height of the trolley shall be 700 mm within the tolerance of +10/-10 mm in height from the floor level.	
6.7	The trolley shall be pushed in / out manually.	

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6.8	The trolley shall be supported by 2 pairs of wheels at front and 2 pairs of wheels at the rear (total 8 No of wheels) so that the movement of the trolley will be smooth at the rails crossing location.	
6.9	The wheels shall be designed to have a smooth travel while moving the trolley with full load. Bearing of the trolley should be of reputed make.	
6.10	Provision shall be made available for lubricating the bearings.	
7.0	Painting: All the doors and equipments shall be painted with 2 coats of SYNTHETIC ENAMEL GLOSSY FINISH APPLE GREEN PAINT AS PER IS 5/1995 - Shade : (ISC)NO-281, after the application of suitable primer.	
8.0	Electrical System:	
8.1	415V (fluctuation + 10% / -15%), 50HZ (fluctuation +/-3 Hz), 3 Phase AC (3 wire system without neutral) Power Supply will be provided by BHEL at a single point near the equipment. All types of cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to different parts of the equipments / control cabinets, shall be the responsibility of the supplier. Requirement of grounding / earthing with required material details should be informed by vendor well in advance so that same could be incorporated during construction of foundation.	
8.2	Tropicalisation: All electrical / electronic equipment shall be tropicalised	
8.3	All electrical & electronic control cabinets & panels should be dust and vermin proof and shall have IP 54 protection.	
8.4	All electrical components in the cabinets should be mounted on DIN Rail. Control Transformer, if any, shall be mounted on the floor of the control cabinet, in such a way that it can be accessed easily.	
8.5	Motors shall conform to IEC or Indian Standards. The motors shall be of reputed make like Siemens, ABB, Kirloskar.	
8.6	All electrics shall be of reputed make like Siemens, L&T, BCH, Tele-mechanique.	
8.7	The Servo & Spindle drives shall be of SIEMENS / FANUC make digital drives, <i>if applicable</i>	
8.8	All components / devices / terminals are to be incorporated with ferrules.	
8.9	Vendor should ensure the proper earthing for the machine and its accessories.	
8.10	Wiring: All electrical motors, limit switches etc, on the machine shall be wired using PVC sheathed cable running in conduits to common terminal block.	
8.11	External wiring from / to control panel, control desk, external motors etc shall be by means of unarmoured multi-core / multi strand copper cables.	

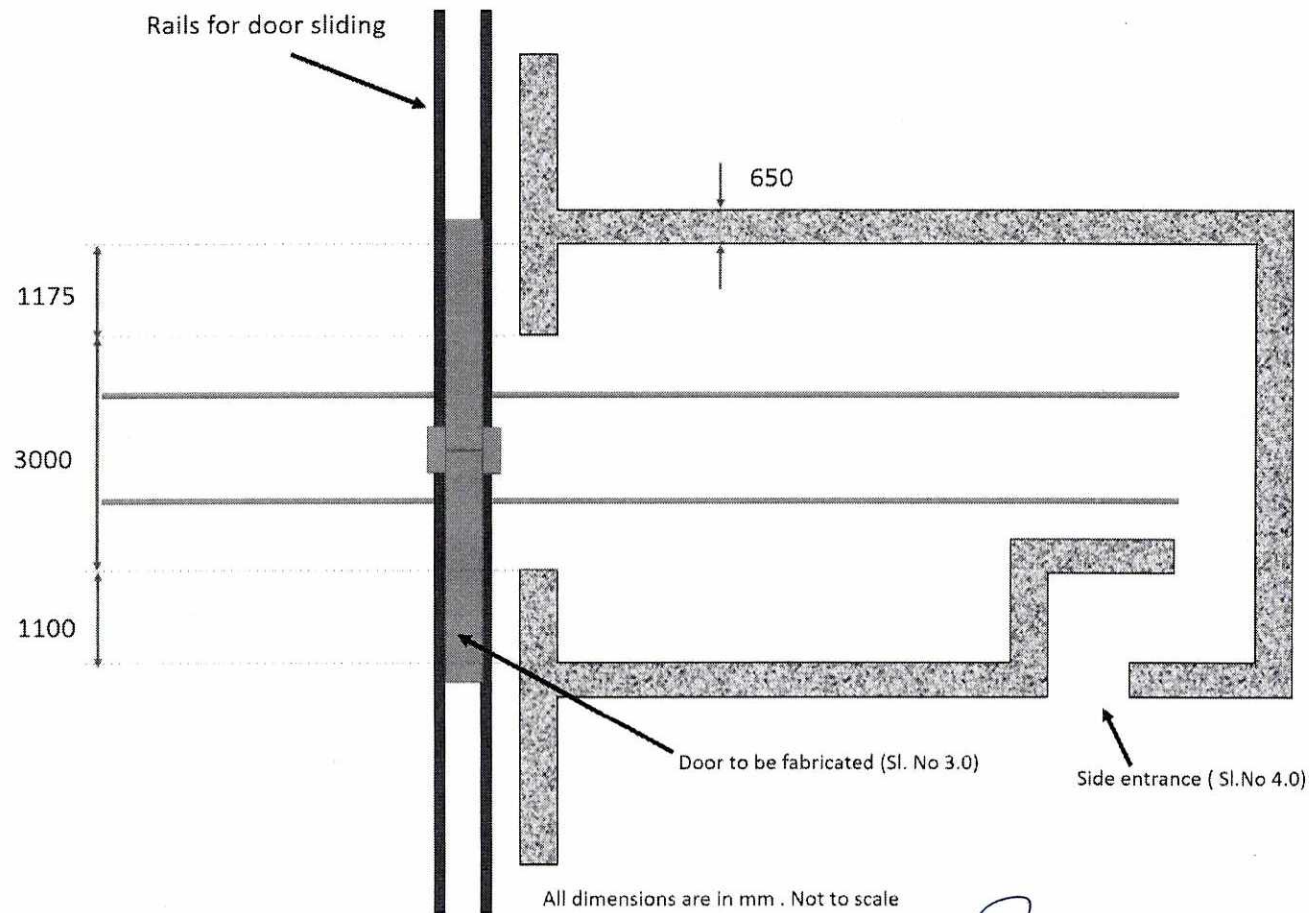
Cl. No.	Description	Bidder's Response
8.12	All cables/ hoses moving with traversing axes should be installed in cable drag chain. Additionally, all the cable trays required for laying of cables should be included in the offer.	
8.13	All solenoids shall be of LED type.	
8.14	All controls and Relays etc. shall be of reputed make such as Siemens, Telemechanic etc	
9.0	Installation and commissioning:	
	The supplier shall be responsible for Installation and commissioning of the system with his manpower at BHEL, Trichy to prove out the system with respect to all functions of the system.	
	Facilities required for installation and commissioning of the system shall be under the scope the supplier.	
	All the anchoring materials, foundation bolts, fasteners, levelling plates, spares, consumables etc required for Installation and commissioning are in the scope of the supplier.	
	Portion, if any, of the equipment, accessories and other supplied items where paint has rubbed off or peeled during transit or erection should be repainted and merged with the original surrounding paint by the vendor. For this purpose, the vendor should supply sufficient quantity of touch-up paint of various colours of paint used.	
10.0	Civil works: Requisite Civil works for installation of the doors will be carried out by BHEL. Detailed requirements of civil work shall be mentioned by the vendor	
11.0	Training: Supplier has to arrange to Provide training to BHEL engineers / technicians on the operation and maintenance aspects of the components.	
12.0	Spares: The supplier has to supply complete set of spares required for 2 years of trouble free operation of the supplied equipments.	
13.0	Warranty: The manufacturer shall give warranty for satisfactory operation of the equipment for a period of 12 months from the date of commissioning of the equipment.	
14.0	Documentation:	
14.1	Following documents are to be submitted <u>along with the "Offer"</u> : a. Completely filled and signed technical offer. b. Supporting document specified vide Cl. 2.1 c. General layout / key plan of the main Door and Drive mechanism. d. Details showing the arrangement of rails & door leaves to avoid interference with the existing rails of Trolley (ref. 3.23)	

Cl. No.	Description	Bidder's Response
	e. General layout / key plan of the side Door with hinge arrangement. f. General layout / key plan of the Adjustable Holder for X-Ray equipment. g. General layout / key plan of the 10T Capacity Transfer trolley h. Itemized list of all the spares – without price along with technical offer. i. Itemized list of all the spares – with price break up along with commercial offer.	
14.2	Manufacturing & Assembly drawings with major dimensions & BOM of the following are to be submitted to BHEL for approval, within 20 days of receipt of LOI / Purchase Order: a. Main Door and Drive mechanism. b. Side Door with hinge arrangement. c. Adjustable Holder for X-Ray equipment. d. 10T Capacity Transfer trolley	
14.3	Three sets of following documents are to be submitted along with the equipment: a. Copy of approved drawings of Main Door and Drive mechanism, Side Door with hinge arrangement, Adjustable Holder for X-Ray equipment and 10T Capacity Transfer trolley. b. Drawings for worn out components & Spare parts c. Detailed list of bought out items d. Operation and Maintenance manuals of the equipments. e. Guarantee / Warranty Certificates. f. Soft copy of documents specified vide 14.3.a to 14.3.e in CD.	

Cl. No.	Description	Bidder's Response
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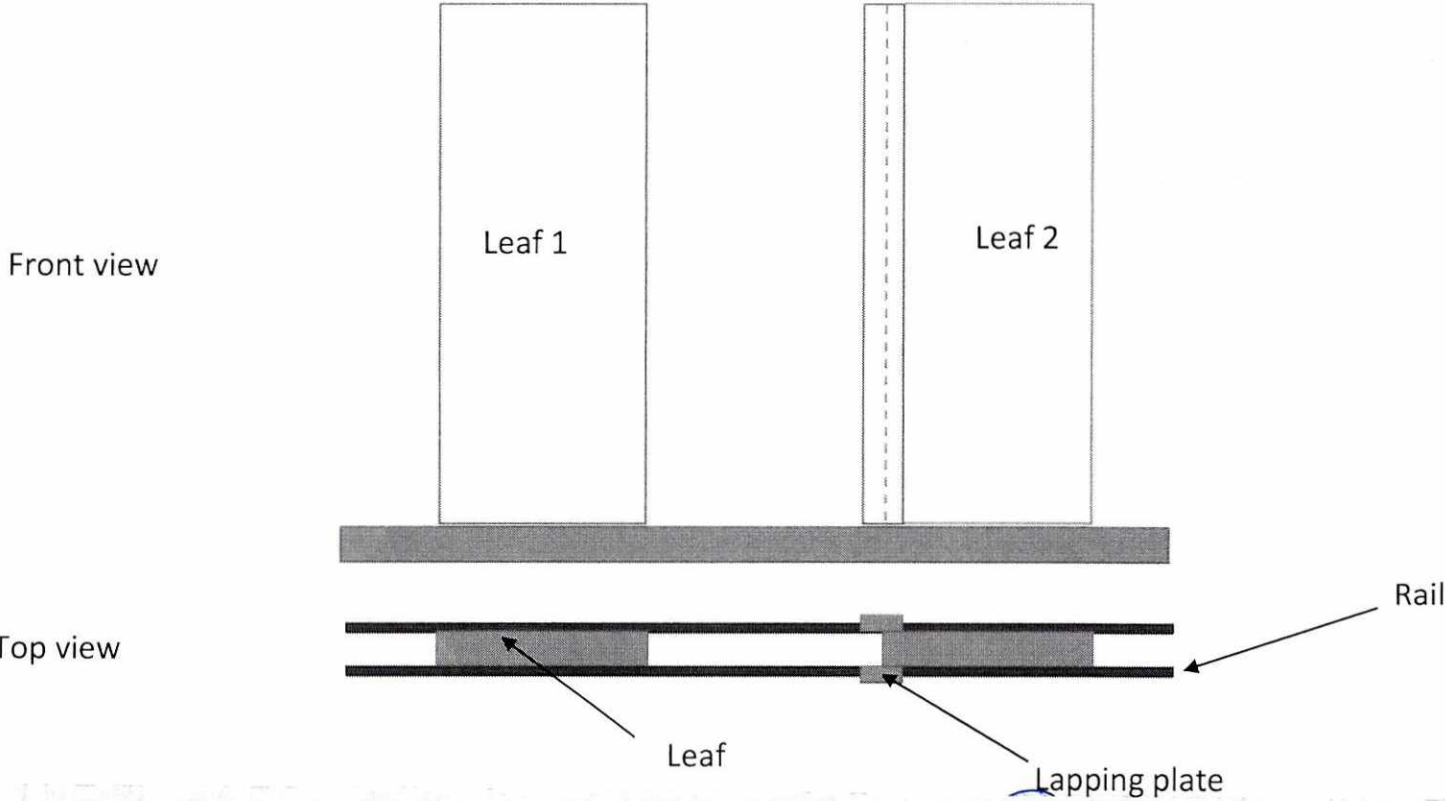
Figure 1

Doors in open condition



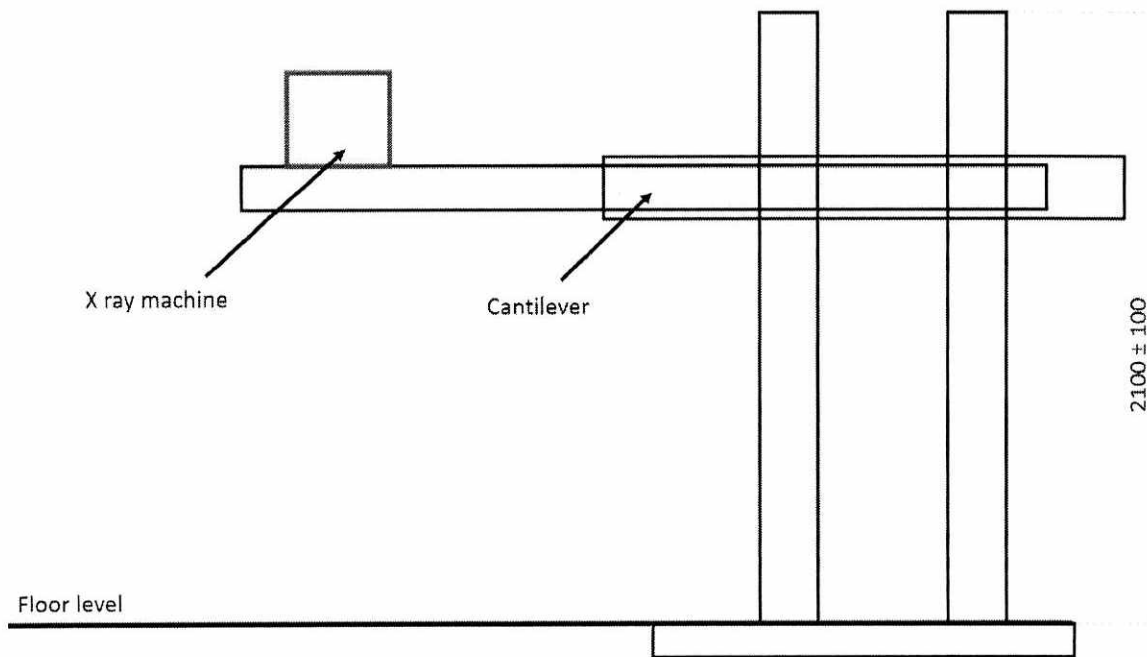
Cl. No.	Description	Bidder's Response
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Figure 2:



Cl. No.	Description	Bidder's Response
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Figure 3:



All dimensions are in mm . Not to scale