BSES

Technical Specification of

LT Air Circuit Breaker

Specification no – BSES-TS-19-LTACB-R0

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1. SCOPE OF SUPPLY

This specification covers the design, engineering, manufacture, assembly and testing at manufacturer's works and supply of Manual / Motorised LT ACB (as per the tender requirement) along with all hardware and accessories required for installation and operation. Note that Quotation shall be provided for both type of ACB for each rating.

2. CODES & STANDARDS

2.1	IS:8623	Specification for factory built assemblies of switchgear & control gear for voltages up to and including 1000V AC/1200 V DC.
2.2	IS 60947-1	Specification for Low-voltage Switchgear and Control gear - Part 2 : Circuit Breakers
2.3	IS:10118	Code of practice for selection, installation and maintenance switchgear and control gear
2.4	IS:16227	Current transformers
2.5	IS:3231	Electrical relays for power system protection
2.6	IS:1248	Electrical Indicating instruments
2.7	IS:4794	Switches and push buttons
2.8	IS:6005	Code of practice of phosphating iron and steel
2.9	IS:5082	Wrought Aluminium and aluminium alloys for electrical purposes
2.10	IS 3043	Code of practice for Earthing
2.11	IS 5	Colours for ready mixed paints and enamels
2.12	IEC 60529	Degree of protection provided by enclosure (IP code)

3. SERVICE CONDITION

The material to be supplied against this specification shall be suitable for satisfactory operation under following climatic condition

3.1	**Location**	**At various location in the Delhi**
3.2	System Configuration	3 Phase 4 Wire with neutral solidly grounded
3.3	Supply Voltage	415 volt +/- 10%
3.4	Supply frequency	50Hz
3.5	Location	Outdoor
3.6	Maximum ambient temperature (ºC)	50
3.7	Minimum ambient temperature (ºC)	0
3.8	Maximum altitude above mean sea level (m)	1000
3.9	Relative Humidity (%)	100
3.10	Rainy month	June to October
3.11	Maximum Rainfall (mm)	1450
3.12	Wind Pressure (Kg/Sq.m)	195
3.13	Seismic Zone	Zone IV as per IS : 1893

4. GENERAL FEATURES

4.1	ACB mounting	Fixed type
4.2	Line-Load Reversibility	Required
4.3	Terminals	Suitable for connection with aluminium busbars with phase barriers & shrouds
4.4	Operating mechanism	a. Motorized LT ACB – Automatic motor wound spring charging mechanism, with manual charging facility b. Manual LT ACB - manual spring charging, stored energy type c. Motorized/manual mechanism shall be as per requirement mentioned in tender d. Antipumping & Trip free feature e. One O-CO operation after failure of charging motor
4.5	Operation counter	4 digit minimum, non-reversible
4.6	Operating handle	Required for manual spring charging
4.7	Spring Charging Motor	Motor shall be rated for 240V AC ± 10%, 50Hz ± 5%, capable of satisfactory operation for the application and duty as required by the driven equipment.
4.8	Local control (For both Manual & Motorized ACB)	ON / OFF push buttons or lever with transparent shutter & locking facility
4.9	Remote control (For Motorized ACB)	GSM based module to be provided for remote closing/ opening of the breaker through SMS from mobile phone of authorized O&M personnel.
4.10	Closing coil	Closing coil shall operate correctly at all values of voltage between 85% & 110% of the rated voltage.
4.11	Tripping coil	Shunt trip shall operate correctly at all values of supply voltage between 70% & 110% of rated voltage.
4.12	ACB auxiliary contacts	6 NO + 6 NC minimum
4.13	ACB operating knob sealing	Possible in OFF condition
4.14	Release and Tripping Mechanism	Microprocessor based release with true RMS based sensing
4.15	Protections Required	Overload, short-circuit, Instantaneous& earth fault
4.16	Neutral bus bar protection	CT Required
4.17	Access to releases, coils & add on type replaceable parts to ACB	From front only
4.18	ACB indications	a. Separate ON / OFF / TRIP b. Spring charge status
4.19	ACB ingress protection (without enclosure)	IP2X minimum
4.20	Pollution degree as per IS	2 – non-conductive pollution

4.21	ACB temperature rise limits	As per table 2 & 3 of IS 13947-1
4.22	Hardwares	
4.22.1	Nuts and bolts materials	Hot Dip Galvanised
4.22.2	Washers and spring washers Materials	Carbon steel

5. OPERATIONAL FEATURES

5.1	Number of phases	Three phase & neutral
5.2	Rated Operational Voltage(V)	415V
5.2	Rated Insulation Voltage (V)	1000V
5.4	Rated Impulse Voltage	8 kV for main circuit
5.5	Category of utilization	B
5.6	Rated Ultimate breaking capacity at rated voltage	Icu = 50 kA minimum
5.6.1	Rating up to 2000A	50 kA (minimum)
5.6.2	Rating 2500A above	65 kA (minimum)
5.7	Rated Service breaking capacity at rated voltage Ics	Ics =100% Icu
5.8	Rated short term withstand current for 1 sec at rated voltage – Icw	Icw = 100% Icu
5.9	Rated making current ampacity – Icm	Icm = 220% Icu
5.10	Number of operating cycles at rated current (open + close)without changing arcing contact	5000
5.11	Number of mechanical operating cycles (open + close)	20000

6. TYPE -1 ACB OF ALL RATINGS - MEASUREMENT &PROTECTION

6.1	Microprocessor release	Self-powered, not tapped from neutral, Setting panel with locking arrangement
6.1.1	Tripping characteristic	With long time & short time characteristics
6.1.2	Overload setting	40% -100% In, steps of 10%.
6.1.3	Overload setting time delay	2.5 s to 40 s minimum three settings
6.1.4	Short Circuit Setting	100% - 800% of In, steps of 10%.
6.1.5	Short Circuit Setting time delay	50ms - 400 ms in steps of 50ms
6.1.6	Instantaneous setting	400% - 1500% of In & OFF
6.1.7	Earth fault setting	10- 100 % of In, steps of 10%
6.1.8	Earth fault setting time delay	50ms - 400 ms in steps of 50ms
6.1.9	Measurements required in release	a. Phase wise current b. Phase wise voltage c. Power factor

		d. Maximum current with date and time
6.1.10	Other release requirements	a. Release should have backlit display. b. Release should be plug in type and easily replaceable in field. c. Release should have RS485 port for remote communication on open Modbus protocol. d. Separate fault indication shall be provided for each protection stage i.e overload, short circuit. e. 10 fault records shall be provided on FIFO basis with time stamp. f. Earth fault protection should not operate during neutral unbalance.

7. TYPE -2 ACB FOR ALL RATINGS - MEASUREMENT & PROTECTION

7.1	Microprocessor release	Self-powered, not tapped from neutral, Setting panel with locking arrangement
7.1.1	Tripping characteristic	With long time & short time characteristics
7.1.2	Overload setting	40% -100% In, steps of 10%.
7.1.3	Overload setting time delay	2.5 s to 40 s minimum three settings
7.1.4	Short Circuit Setting	100% - 800% of In, steps of 10%.
7.1.5	Short Circuit Setting time delay	50ms - 400 ms in steps of 50ms
7.1.6	Instantaneous setting	400% - 1500% of In & OFF
7.1.7	Earth fault setting	10- 100 % of In, steps of 10%
7.1.8	Earth fault setting time delay	50ms - 400 ms in steps of 50ms
7.1.9	Measurements required in release	a. Phase wise current b. Phase wise voltage c. Power factor d. Maximum current with date and time
7.1.10	Other requirements	a. Release should have backlit display. b. Release should be plug-in type and easily replaceable in field. c. Separate fault indication shall be provided for each protection stage i.e overload, short circuit and earth fault d. Release should store 10 fault records on FIFO basis with date and time stamp. e. Release should have RS485 port for remote communication on open Modbus protocol. It should be able to transmit all measured, monitored and recorded data to SCADA from this port including status of DIs and DOs. f. Release should have 2DIs for CB On and Off status shall be wired to DIs through auxiliary switch. g. Remote time synchronization through SCADA should be possible

		h. Earth fault function should not operate during neutral unbalance. Same will be verified during inspection.

8. BUSBAR

8.1	Material	High conductivity electrolytic grade aluminium
8.2	Bus bar size	a) Suitable for carrying rated continuous current i.e. 400A/1250A/2000A/3200A depending upon the breaker rating. Current density should be 1A per sqmm. b) Size of neutral busbar should be same as phase busbar. c) Busbar shall be designed for maximum of 40 degrees temperature rise over ambient. d) Bus bars shall be colour coded with heat resistant sleeves for R,Y,B phases and black sleeves for neutral (from left to right).
8.3	Clearances	a) All live parts of the ACBs shall have adequate clearance between the phase to phase and phase to earth / body of enclosure as per the standard. All the clearance shall be more than the minimum standard laid down as per IS standard.
8.4	Bus bar arrangement	a) All the busbars are to be extended on rear side incorporating proper arrangement for connecting LT XLPE/PVC cables. b) Busbar to be extended in such a way that adequate insulation is provided between the enclosure and busbar. c) Inter phase barriers to be provided on both incoming and outgoing side busbar. d) Entry / exit of rear side busbar from the LT ACB shall have separate openings for I/C & O/G circuits. Separate openings shall be provided for each phases and shall be sealed with FRP covers. e) Phases shall be separated with phase barriers with polycarbonate sheets.
8.5	Cable termination	Arrangement shall be as shown in annexure-A. Appropriate working clearances have to be maintained and are subject to approval during detailed engineering stage.
8.5.1	3200A ACB	a) Incomer – 3 nos. x 1C x 1000sqmm cable per phase. b) Outgoing – 8 nos x 4C x 300sqmm cable
8.5.2	2000A ACB	a) Incomer – 3 nos. x 1C x 630sqmm cable per phase. b) Outgoing – 6 nos x 4C x 300sqmm cable
8.5.3	1250A ACB	a) Incomer – 3 nos. x 1C x 630sqmm cable

		per phase. b) Outgoing – 6 nos x 4C x 300sqmm cable
8.5.4	400A ACB	a) Incomer – 2 nos. x 4C x 300sqmm cable b) Outgoing – 2 nos x 4C x 300sqmm cable
8.6	Earthing	a) The earth bus of 50x6mm Aluminium shall run throughout the length of the panel at the bottom of the board. b) Two number Earthing bolts of size M8 to be provided with suitable green colour earth logo.

9. CURRENT TRANSFORMER

9.1	Type	Cast-resin type, Class-E insulation, rated for 120% current Continuous
9.2	Provision	Shall be provided in all the phases and neutral for overcurrent and earth fault protection. All the CTs shall be integral part of ACB in all the phases. Separate CTs shall be connected in the neutral for detecting earth fault.
9.3	Secondary current	1A
9.4	Protection CT Class	5P10
9.5	Metering CT Class	1.0
9.6	Rated Burden	Shall be 2 times the connected burden

10. TERMINALS AND WIRING

10.1	Secondary Wiring	
10.1.1	Grade and type	1100 V grade, PVC insulated, FRLS type stranded flexible copper wire.
10.1.2	Ferruling	Each wire shall bear an identifying ferrule or tag at each end or connecting point.
10.1.3	Size	2.5sqmm copper (minimum)
10.2	Terminals	
10.2.1	Grade	1100V grade, moulded piece terminals complete with insulated barriers, washers, nuts and lock nuts.
10.2.2	Power terminals type	Stud type, nut driver operated
10.2.3	Control terminals type	Stud type, screw driver operated suitable for minimum 6sqmm wire.

10.2.4	Spare terminals	20% spare terminals should be provided in each terminal block.
10.2.5	Accessibility	Placement of terminal shall enable proper cable termination. Terminals shall be readily accessible for inspection and maintenance.
10.2.6	Marking	The terminals shall be serially numbered to facilitate installation and maintenance.

11. METERS, INDICATIONS AND PUSH BUTTONS

11.1	Meters	
11.1.1	Type	Digital with inbuilt phase selector
11.1.2	Accuracy Class	1.0
11.1.3	Auxiliary Supply	240V AC with 10% tolerance
11.2	Indicating Lamps	Indicating lamps shall be of low wattage cluster LED type.
11.2.1	ACB On	Red
11.2.2	ACB Off	Green
11.2.3	ACB Trip	Amber
11.3	Push Buttons	For manual operation of incomer ACBs

12. TYPE-1 ACB – ENCLOSURE REQUIREMENTS

12.1	Type	Enclosure shall be suitable for outdoor installation. All the welding shall be continuous type.
12.2	Ingress Protection	IP55 supported by CPRI/ERDA test report. Change in enclosure design has to be validated by CPRI/ERDA
12.3	Enclosure Sheet material and Thickness	a) Minimum 2.5 mm CRCA sheet for load bearing members b) Minimum 2.0 mm CRCA sheet for doors and covers c) No welds, rivets, hinges or bolts shall be visible from outside. d) Make of CRCA sheet to be TATA/SAIL/JINDAL
12.4	Canopy	Suitable canopy to be provided on the enclosure for preventing rain water accommodation. Canopy to be extended at both front and rear

		side.
12.5	Doors and covers	a) Door shall be opened vertically. Suitable bonnet type locking arrangement shall be provided to hold the door at open position. b) Handle shall be provided to open the door. c) The door shall be non-removable type and hinges shall be concealed type. d) The front cover shall have a viewing window of required size for monitoring the close, open, trip and spring charge status of breaker from outside without opening the door. The viewing window shall be transparent, steel reinforced glass material which shall be fixed on the front cover by using neoprene gasket and suitable screws/rivets. e) The door of the ACBs shall be lockable and shall be fitted with neoprene gaskets.
12.6	Door Hinges	Door Hinges shall be Anti-theft type
12.7	Mounting of the panel	a) ACB with enclosure shall be suitable for mounting on poles/plinth. b) ACBs of all the ratings i.e, 400A/1250A/2000A/3200A shall have bolted stand of 900mm and ACBs of each rating mentioned shall have busbar arrangement inside the breaker enclosure with appropriate support insulator.
12.8	Paint	
12.8.1	Surface Preparation	By 7 tanks Pre-treatment process or shot blasting method.
12.8.2	Colour shade of powder coating	632 as per IS 5/ Light orange 557 as per IS 5 (As per Tender Document)
12.8.3	Paint thickness	70 microns (minimum)

13. TYPE-2 ACB – ENCLOSURE REQUIREMENTS

13.1	General	Enclosure shall comply with all requirements mentioned in section-12 above.
13.2	Additional Requirements	a. Complete connections including incoming and outgoing busbars shall be inside the metal enclosure b. Appropriate support shall be provided to incoming and outgoing busbars through support insulators c. Stand of 900 mm height shall be integrated with the ACB enclosure. d. For ACBs of higher ratings i.e 2000A and

		above, incoming connection should be placed below the ACB and outgoing connection should be placed at the rear of ACB.

14. NAME PLATES & MARKINGS

14.1	Panel nameplate	Nameplate shall be made of anodized Aluminium riveted on a side of the enclosure panel. Nameplate shall be etched or engraved. Nameplate clearly indicates the following: a. BSES Logo b. Property of BSES c. Name of manufacturer d. Name of customer e. Current rating, Voltage rating f. Type of panel g. PO no. & Date h. ACB Serial no. i. Month & year of manufacturing j. Guarantee period k. Manufacturer Call center no. & email id
14.2	Danger plate	1) Danger plate shall be as per IS:2551 2) Danger plate shall be anodized Aluminium plate riveted to the enclosure or danger marking can be screen printed on the front cover.
14.3	Equipment ID Marking	a) BSES Equipment ID shall be painted on two side of Enclosure (in Front & on side of Enclosure). b) Equipment id details & specification shall be providing you at the time of GTP approval

15. APPROVED MAKE OF ACB

15.1	ACB	L&T/Siemens/ABB/GE/Schneider/C&S/HPL/Havells
15.2	Switch	Siemens/L&T (Saizer)
15.3	HRC Fuse Links	GE/Siemens/L&T
15.4	Terminals	Connectwell/Elmex/Wago/Phoenix
15.5	Push Buttons/Actuators	L&T/Siemens/Vaishno/Schneider
15.6	MCB	Datar/Legrand/Hager/Schneider/ABB
15.7	Indicating Lamps	Vaishno/Binay/Teknic/Siemens/C&S

16. INSPECTION AND TESTING

16.1	Type test	Type test report of breaker with the offered release from CPRI/ERDA has to be submitted.
16.2	Acceptance & Routine tests	As per IS:60947 part – 1 & 2

17. PACKING, SHIPPING, HANDLING & SITE SUPPORT

17.1	Packing Protection	The packing shall be fit to withstand rough handling during transit and storage at destination. The test set should beproperly protected against corrosion, dampness & damage.
17.2	Packing for accessories and Spares	Robust non-returnable packing case with all the above protection & identification Label. The bidder should get the packing list approved before dispatching the material.
17.3	Packing Identification Label	On each packing case, following details are required:
17.4	Individual serial number	
17.5	Purchaser's name	
17.6	PO number (along with SAP item code, if any) & date	
17.7	Equipment Tag no. (if any)	
17.8	Destination	
17.9	Manufacturer / Supplier's name	
17.10	Address of Manufacturer / Supplier / it's agent	
17.11	Description	
17.12	Country of origin	
17.13	Month & year of Manufacturing	
17.14	Case measurements	
17.15	Gross and net weight	
17.16	All necessary slinging and stacking instructions	
17.17	Shipping	The seller shall be responsible for all transit damage due to improper packing.
17.18	Handling and Storage	Manufacturer instruction shall be followed.
17.19	Detail handling & storage instruction sheet / manual to be furnished before commencement of supply.	

18. DEVIATIONS

18.1	Deviation	Deviations from this Specification shall be stated in writing with the tender by reference to the specification clause/GTP/Drawing and a description of the alternative offer. In absence of such a statement, it will be assumed that the bidder complies fully with this specification. No deviation will be acceptable post order.

19. DOCUMENTS SUBMISSION

Document submission shall be as per the matrix given below. All documents/drawing shall be provided in soft copy (in pen drive) for each section. Language of the documents shall be English only. Deficient/improper drawing submission may liable for rejection.

S.No.	Detail of Document	For Tender	For Approval/Review	Final Submission
1	Guaranteed Technical Particulars (GTP)	Required	Required	Required
2	Deviation Sheet, if any	Required	Required	Required
3	GA and Dimensional Drawing	Required	Required	Required
4	Installation Instructions		Required	Required
5	Manual/Catalogue	Required	Required	Required
6	Manufacturer's quality assurance plan and certification for quality standards		Required	Required
9	Type test reports of offered type and rating of breaker	Required	Required	Required
10	BIS certificate	Required		

12	Make of Raw Materials	Required	Required	Required
13	Inspection and test reports, carried out in manufacturer's works			Required
14	Routine Test Certificates			Required
15	Test certificates of all the raw materials			Required
16	Deviation sheet	Required		

ANNEXURE A – GUARANTEED TECHNICAL PARTICULARS

S. No.	Item descriptions	Specification Requirement	Data by Vendor
1	**ACB** Manufacturer	Name	
1.1.1		Address	
1.1.2		Contact person	
1.1.3		contact telephone no	
1.1.4	ACB Brand name	Manufacturer catalogue reference	
1.2	ACB rated current at 50 Deg.C	400/1250/2000/3200A	
1.3	No of poles	3	
1.4	Rated Operational voltage	415V AC ± 10%	
1.5	Rated insulation voltage	1100V	
1.6	Rated impulse withstand voltage	8 kV	
1.7	Category of utilization	B	
1.8	Service supply for heating, lighting, power sockets and spring charging motor	240V AC ± 10%	
1.9	Rated ultimate breaking capacity at rated voltage for rating upto 2000A	Icu	
1.9.1	Ratings up to 2000A	50 kA minimum	
1.9.2	Rating 2500A above	65 kA minimum	
1.10	Rated service breaking capacity Ics	Ics = 100% Icu at rated voltage	
1.11	Rated short time withstand current for 1 sec.	Icw = 100% Ics at rated voltage	
1.11.1	Rated making current	Icm = 220% Icu	
1.12	Number of operating cycles at rated current (open + close) without changing arching contacts	5000	
1.13	Number of mechanical operating cycles (open + close)	20000	
1.14	De-rating of ACB	0% at 50 Deg.C	
1.15	ACB clearance in air	As per table 13 of IS: 60947-1	
1.16	ACB temperature rise limits	As per table 2 & 3 of IS: 60947-1	
1.17	ACB mounting	Fixed	
1.18	ACB operating counter	4 digit minimum, non-reversible	
1.19	Line load reversibility	Provided	
1.20	ACB operation control	ON / OFF push buttons	

1.21	Safety shutter and racking interlock	Required	
1.22	Terminal size	Size in **mm*mm**	
1.23	Operating handle	Required	
1.24	ACB position indicator	ON / OFF / Trip / Spring charged	
1.25	ACB ingress protection (without enclosure)	IP 2X minimum	
1.26	Pollution degree as per IS	2 mimimum	
1.27	Product Information as per clause 5 of IS:60947, part - 1	In addition name of the purchaser shall be marked on the front of the devices as BSES	
1.28	Tripping mechanism / releases with true RMS based sensing	microprocessor based	
1.29	Tripping characteristic requirement		
1.29.1	Overload setting	40 % to 100% In steps of 10%	
1.29.1.1	Time delay	2.5s to 40s minimum three settings	
1.29.2	Short circuit setting	100 % - 800 %In steps of 10%	
1.29.2.1	Time delay	50 - 400 ms in steps of 50 ms	
1.29.3	Instantaneous setting	400% - 1500% of In & OFF	
1.29.4	Earth fault setting	10 - 100 % of In, steps of 10%	
1.29.4.1	Time delay	50 - 400 ms ms in steps of 50 ms	
1.30	Release requirement	Self powered, not tapped from neutral	
1.31	Minimum primary current	Required for operation release	
1.32	ACB opening time	in ms	
1.33	ACB closing time	in ms	
1.34	ACB dimension	L X B X H in mm	
1.35	ACB weight	in Kg	
1.36	ACB watt loss at rated current (W)	At rated voltage and current	
2	**Busbars**		
2.1	Make		
2.2	Material and grade of buses	High conductivity electrolytic grade Aluminium	
2.3	Reference Standard		
2.4	Continuous current (at site condition, 50 deg celcius ambient) within cubicle	3200A/2000A/1250A/400A	

2.5	Cross sectional area		
2.6	DC Resistance	Ohm/m/ph	
2.7	Skin-effect ratio		
2.8	Reactance	Ohm/m/ph	
2.9	Losses-middle phase	w/m/ph	
2.10	Minimum clearance of busbar	Required	
2.10.1	Phase to phase (mm)		
2.10.2	Phase to earth (mm)		
2.11	Busbar dimension	LxWxH (mm)	
2.12	Busbar insulation	Heat shrinkable sleeves rated for maximum operating voltage	
3	**Current Transformer**		
3.1	Make		
3.2	Type	Resin Cast	
3.3	Reference Standard		
3.4	CT ratios		
3.5	Class of Insulation	Class – E	
3.6	Protection class	5P20	
3.7	Metering class	1	
3.8	VA burden for Relaying CT-Incomer	Two times the connected burden	
4	**Control & Indications**		
4.1	Push button		
4.1.1	Make and Model no.		
4.1.2	Type	Flush mounted type with touch proof terminals	
4.2	LEDs		
4.2.1	Make & Model no.		
4.2.2	Type	Flush mounted type with touch proof terminals	
5	**Terminal Blocks**		
5.1	Make & Model no.		
5.2	Spare terminals	Equal to 20% of active terminals in each TB	
5.3	Control terminals	Stud type, screw driver operated suitable for minimum 6sqmm wire	
6	**ACB Enclosure**		
6.1	Make of Enclosure		
6.2	Enclosure thickness		
6.2.1	Load bearing member	2.5 mm	
6.2.2	Doors and Covers	>=2mm	

6.3	Enclosure Material	CRCA Sheet	
6.4	Enclosure degree of protection	IP55	
6.5	Powder coating		
6.5.1	Colour shade of powder	632 as per IS 5/ Light orange 557 as per IS 5 (As per Tender Document)	
6.5.2	Minimum thickness of coating	70 microns minimum	
6.6	Danger plate		
6.7	Thickness of FRP plate between extended aluminium bus and frame		
6.8	Thickness of phase barriers provided between individual phases at incoming and outgoing		
6.9	Weight of ACB with enclosure	Kg	
6.10	Enclosure dimensions	LxWxH (mm)	
6.11	Marking on the panel as per specification		
7	**Tests**		
7.1	Confirmation to routine tests to be performed as per IS:60947	Yes/No	
7.2	Confirmation to routine tests to be performed (or report submitted) as per IS:60947	Type test report no. / date	
7.3	Confirmation of type test of IP55 to be performed (or report submitted)	Type test report no. / date	
7.4	Confirmation of Acceptance tests to be performed during inspection as per IS:60947	Yes/No	
8.0	Deviation sheet against each clause of the specification	To be submitted	